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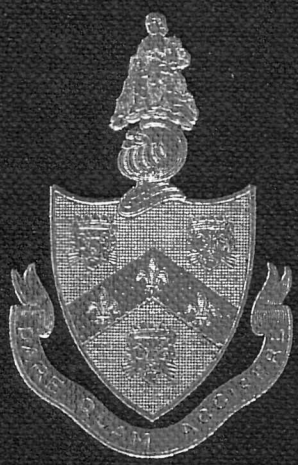

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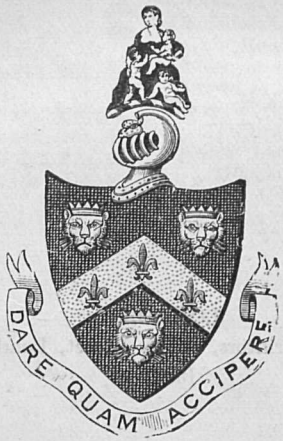

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GUY'S HOSPITAL GAZETTE

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PASSIM

CHRISTMAS is over and the New Year has come, the Sisters' Dance is gone and the Nurses' Dance is behind us. The wards have long since lost their decorations and the College dining-room has at last been restored to its familiar self by the removal of a quantity of paper chains, holly and even mistletoe. We have thrown our Christmas cards on the fire, put some of the fiercer ties and socks (presents from a devoted but colour-blind aunt) at the back of the wardrobe where they can do no damage, hung a half-dozen or so of calendars around the walls, and settled back with a sigh (we dare not say " of relief ") to the delightful monotony of life and work.

There is much to be said in favour of that delightful old gentleman, Scrooge. He may have been somewhat tight-fisted, but he knew how to enjoy his Christmas ; and if he had not, in a welter of Victorian sentimentality, weakened at the last moment and made of himself such a disgustingly genial old fool, he might have acquired a truly illustrious niche in history. Never can it be sufficiently deplored that Scrooge has not founded a large family, and that Scroogedom is not more popular. When we see a beautifully clean, neat ward transformed into an orange grove or a Japanese garden, when we see Out-patients converted into a vast palais de danse, when perfectly respectable, young house officers rush from ward to ward in a string of beads, a black face and a harassed manner, never can we regret too much that there will never be a reincarnation of Scrooge, who, armed with a Puritanical mop, should clean out these Augean stables of festivity.

The sisters and nurses lavish an immense amount of forethought and care on the decoration of their wards and on the entertainment of their patients. Many people, entertainers, singers, music-hall artists, give up their valuable time to come down to the hospital ; the house officers devote most of the evenings of an entire month to Nigger rehearsals, and for what useful purpose ? We do not wish to decry the good which these efforts produce ; but we consider that this worship of the Christmas fetish is carried too far. Now that Christmas Day and its celebrations have for most people lost their intensely spiritual appeal and have degenerated into a feast day at which too much food is eaten, too much wine drunk and too much liberty is allowed, we cannot help but feel that the amusement which they afford is scarcely worth their attendant inconveniences and discomforts.

WE have just received the information that Guy's Hospital is poorer this year by the lack of subscriptions from certain people, who assert that, as long as medical students continue to break up anti-vivisectionists' meetings, so long will their collections find their way into the pockets of other and less demonstrative hospitals. The position in which the Governors of the hospital now find themselves is not easy, as neither they nor any of the powers that be at Guy's have any jurisdiction over the behaviour of her students once they are out of working hours ; and it seems unjust that the Governors should be penalised for what is not their fault, but that of a number of the younger and irresponsible students.

If the latter would only reflect, they would at once perceive that to give battle to an enemy, and in such an enthusiastic way as they have often employed, is rather to magnify the enemies' cause than to diminish it. More popular movements have been destroyed in England by lukewarm enthusiasm than by the sword, more Communists have been turned into good, trustworthy Members

of Parliament than have been hounded out of the country into exile and disgrace. English statesmen have always realised this, and by the magnanimous liberty which they grant to the press and to the demagogue they have robbed both these dangerous weapons of their sharp edge.

Let us, therefore, borrow a little of the politicians' guile and ignore or damn with the faintest praise those movements of popular thought which are so distasteful to us in our profession. Such an attitude is far more befitting the dignity of medicine, and far more difficult for the anti-vivisectionist to attack. Direct force is distasteful to us, and will not gain us anything; the bad egg as an argument is worse than useless. If we can but relegate the anti-vivisection movement to the correspondence columns of *The Times*, the whole question will be dead.

NEW Year resolutions are most delightful things; one makes them with so much solemnity, with so much of the "never no more" gesture, that the incongruity of breaking them the next week is most enjoyable. We are for the moment encumbered by three or four such vows, but, as they are only made to be broken, we are anticipating already the delightfully painful pleasure of seeing them slip, one by one, into the mosaic of that broad, smooth pavement which leads to the infernal regions.

There is, however, one resolution which we would like to impress upon housemen, present and future, and it might be worded thus :—

"*I will try to remember, in choosing cases for admission, that Guy's is a Hospital and not an institution for the amusing but barren pastime of collecting rare and interesting pieces of human pathology. I will therefore curb my natural enthusiasm for the unusual and admit those patients who are ill and in genuine need of treatment, however commonplace their diseases may be.*"

WE would like to offer our hearty congratulations to Mr. R. J. Cann and Mr. W. A. Mill on passing the M.S. (London) Examination, and to the former on obtaining the Gold Medal in the examination. We also congratulate Mr. R. S. de Bruyn on his appointment as Surgical Registrar.

THE following have been elected "Clinicals" for the three months beginning on 16th January, 1931 :—

Mr. K. Biden-Steele.	Mr. R. W. McNabb.
Mr. A. R. Clarke.	Mr. J. B. Scholefield.
Mr. D. W. James.	Mr. C. K. Simpson.

WE have been asked by Sister Out-patients to express our most sincere gratitude to all those who helped, either by gifts or by actual attendance, to make the Landon Tea such a great success.

SURELY never has their been a more enjoyable Nurses' Dance than that held this year on 1st January. The Home looked pretty, the nurses' even more so, and everyone was in the best of spirits—a most promising start to the New Year we thought.

MAY we remind our readers that the Residents' Ball this year is on Friday, 16th January, at Grosvenor House? Tickets, 21s. each, may be obtained from Mr. W. L. M. Bigby, the College, or other members of the Committee. The Ball, we believe, promises to be as successful as that of last year.

Rectal Narcosis

A Clinical Lecture by Sir Francis Shipway, K.C.V.O., M.D.

GENTLEMEN,—There are certain advantages to be obtained from the administration of hypnotics and anæsthetics by the rectum. I propose to discuss two which are commonly used, namely, paraldehyde and avertin.

The method is simple, easy and certain, and it can be applied to the patient in his bed, thus sparing him the unpleasant preliminaries of operation—the journey to the anæsthetising room and the strange surroundings of the theatre—and eliminating the psychical strain caused by the fear, amounting in some patients to terror, and the discomforts of the inhalation method. On the other hand it must not be forgotten that the rectal method introduces the risk of irritation of the intestinal mucous membrane unless the drugs which are used are harmless to the mucosa or can be rendered harmless by admixture with a suitable vehicle, *e.g.*, ether by admixture with olive oil. It also deprives the anæsthetist of the regulation of the depth of narcosis, for the drug is not given continuously and in varying quantities to meet the needs of the moment, but in a single dose which is quickly absorbed. It follows, therefore, that the choice of drug is limited, and that no attempt must be made to procure complete anæsthesia; in other words, only a *basal narcosis* is permissible. This may suffice for operation if combined with

local anæsthesia or supplemented by the use of gas and oxygen or a minimal quantity of ether. This combined method offers immense advantages, and whether the basal narcotic is given rectally or by other routes would appear to be the method of the future, for, apart from the pre-operative benefit received by the patient, it reduces mortality by diminishing the frequency of pulmonary complications and ensures a recovery which is singularly free from ill-effects. Further, it removes the fear which in some instances has been known to lead to postponement of measures which have been admitted to be necessary.

PARALDEHYDE

Paraldehyde is a very safe and a powerful hypnotic; in large doses the respiration is not affected and the heart is strengthened. It is non-toxic and produces no after-effects beyond those due to its nasty taste and unpleasant smell. When used as a basal narcotic it is given by body weight, the usual dose for children being 1 drachm for each stone of body weight. This basis of calculation may be applied to adults, although a dose of 7 to 8 drachms is usually sufficient. Experience and judgment alone can decide whether to give a preliminary injection of morphine or not to an adult. The full dose of paraldehyde should not be given to flabby or very anæmic children, in whom a satisfactory sleep can usually be induced by a dose of ¾ dr. for each stone of body weight. Paraldehyde is soluble 1 in 10 of water at 0°C. and to the solution, which must be well shaken before injection, can be added 5 per cent. glucose. The patient should have a bowel wash-out at least three hours before operation; a constipated child should be given an aperient two nights before operation. Much depends upon the proper preparation of the bowel, and in order to ensure success in a sensitive patient a chloretone suppository of 5 to 10 gr. should be given one hour before the paraldehyde. Atropine should be given by mouth in the form of a tablet if the child is highly nervous; double the hypodermic dose is necessary. Some anæsthetists omit atropine.

The solution of paraldehyde, the temperature of which should not be raised on account of the volatility of the drug, should be run in slowly, the catheter having been passed up 4 inches, and care should be taken that no air is allowed to enter with the solution. Ten minutes at least should be spent over the injection and the patient encouraged to retain it. It usually produces sharp, colicky pains, but drowsiness soon comes on and the patient falls into a deep sleep. The catheter may be withdrawn at the end of the injection, when a pad of wool should be placed over the anus and the patient left lying with the legs adducted; the room should then be darkened and silence observed. Skill and tact are essential in administering this injection, both on account of the pain produced by it and of the aversion shown by children to rectal injections, and it is very important that the nurse should be patient and persuasive. The child falls asleep in about 15 minutes, and is well narcotised, as a rule, in three-quarters of an hour. The face is flushed, the pupils are contracted, the conjunctival reflex is absent, the corneal reflex present, the pulse rate is slowed, and the respiration regular and quiet.

Gas and oxygen or ether or a local anæsthesia must supplement the deep sleep produced by paraldehyde. Ether should be preceded by ethyl chloride, which may be given by dropping it either on to the blanket drawn gently up over the child's face or on to a mask; any restlessness or resistance is quickly overcome, and is not remembered by the child even though he may have cried out or talked. Much less anæsthetic is required than usual, and the anæsthetist should have no difficulty in gauging the depth of anæsthesia. Sleep is prolonged after operation, even for many hours. Nausea and vomiting are rare, although some children and adults complain of, and are nauseated by, this disgusting drug. If it is desired to hasten the recovery, the colon may be washed out at the end of operation, although it is doubtful whether this step is of much value.

Paraldehyde should not be given in the presence of disease of the bowel; it does without doubt produce distension of the intestine, which may cause embarrassment during abdominal operation. Rarely, it produces anal abscess, but Sir Maurice Craig tells me that this can be prevented by not allowing the solution to come into contact with the outside of the catheter.

AVERTIN

Avertin or tribromethanol is a white crystalline powder which is soluble in water up to 3.5 per cent. It is supplied as Avertin Fluid, the solvent being amylene hydrate, it is a more powerful hypnotic than paraldehyde, and has a stimulating action on the respiration. Avertin Fluid contains 1 gm. of avertin in each 1 c.c.; it is fairly stable, but should be protected from light and air. For rectal injection it is given in a 2½ or 3 per cent. solution of *distilled* water. The manufacturers stated originally that the water must not be heated beyond 40° C. for fear of decomposition of avertin with the formation of dibromacetaldehyde, which is very irritating to the intestinal mucosa, but I am now informed that even a temperature of 100° C. can be reached, provided this temperature

is not maintained, and, in fact, I have often heated the water up to 60° C. without decomposing the avertin.

The test for dibromacetaldehyde, *which must be applied immediately before use*, consists in adding 2 drops of a 1 in 1,000 solution of Congo red to 5 c.c. of the solution. The resulting colour must be pure orange-red; if it turns blue the solution must be discarded. It is sometimes convenient to keep the solution in a thermos flask, where it will remain stable for several hours at body temperature, and if the 5 c.c. used for testing are returned to the flask the solution will become slightly pink. When the time arrives for injection any alteration in colour can be seen at a glance. In carrying out the test it is essential to adhere strictly to the figures given. Full instructions for the preparation of the solution are given in the pamphlet issued with Avertin Fluid.

Avertin is rapidly absorbed by the bowel, and is eliminated by the kidneys, becoming detoxicated by combining with glycuronic acid. Straub has recovered from the urine 81 per cent. of the drug within the first 48 hours after its administration. The method described by Parsons (*B.M.J.*, October 19th, 1929) for estimating its excretion is now known to be "fundamentally unsound and inaccurate" (*Brit. J. of Anæsth.*, October, 1930, p. 24).

Avertin is used solely as a basal anæsthetic. Dosage is based upon body weight; this is an unreliable guide, for habits and temperament are factors which modify profoundly the reaction of the patient to anæsthetics, and of the two temperament is, in my opinion, the more important. Thus the very excitable and the highly nervous are but lightly affected by doses of avertin which would produce profound unconsciousness in the placid and the phlegmatic. Speaking generally, however, the dose ranges from 0.07-0.08 gm. to 0.1 gm. per kilo of body weight, the smaller doses being indicated for patients suffering from anæmia, cachexia or exhaustion. The normal healthy patient should be given the full dose (0.1 gm.); children tolerate avertin well—in fact, frequently the full dose will be found almost insufficient to produce a deep sleep, but the amnesic effect of avertin is so remarkable that the main object for which the drug has been given will have been attained. The dose must be reduced for the aged, and for patients with deficient thyroid secretion. Experience alone can decide whether to give morphine or not. It is, however, far better for the anæsthetist to omit morphine unless he has had a large experience of avertin, for the depressing effect of morphine upon the respiratory centre and the reflexes much augments the slight lowering of nervous excitability produced by avertin. As the drug cannot be recovered from the bowel, once it has been injected respiratory failure can only be treated by drugs which stimulate the centre and at the same time raise blood pressure. Various drugs such as strychnine, caffeine and ephedrin have been suggested, but the best stimulant would appear to be CO_2.

The evening before operation an enema or, better, a plain water wash-out should be given. Rectal irrigation should be avoided a few hours before injection of avertin. In cases of emergency the emptying of the lower bowel can be omitted; I have found that patients who have not been prepared may retain the injection, but even if it is returned shortly after it has been given, the rapid absorption of avertin has produced the effect of sedation. A preliminary injection of atropine should be given if a general anæsthetic is to be used.

The method of injection is the same as with paraldehyde except that the solution can be run in more quickly (3 to 5 minutes); should the onset of unconsciousness be rapid the injection should be stopped. If the bowel has not been prepared, longer time should be taken over the injection.

The effects are seen within a very short time, especially if the patient does not resist the action of the drug. As a rule, he yawns or rubs his eyes before the injection is finished, and in a few minutes is fast asleep. There is no excitement, the patient often falling off to sleep in the middle of a sentence. The colour of the face is slightly flushed, the respiration a little shallow and the rate a little increased; the pulse-rate is also raised. The muscles of the jaw are semi-relaxed and the breathing becomes stertorous; the head should then be turned to the side or well extended, or an airway may be inserted. The pupils are contracted, but react to light. The conjunctival reflex is absent, the corneal present. The blood pressure falls usually 15 to 30 mm. Hg., but greater falls are observed in patients with high blood-pressure or with arterio-sclerosis. In no case have I seen a fall of blood-pressure which caused any anxiety or called for treatment.

The maximum effect is obtained in the average patient in 20 minutes, but in the refractory patient not under 30 minutes. A very nervous frightened woman who may cry or become hysterical needs reassurance and quiet persuasion that all will go well; external stimuli should be excluded, and especially should the patient's hand not be held longer than is absolutely

essential, for the sooner this physical contact is broken the sooner will sleep begin. Children who have not been adequately prepared are sometimes restless, due to the presence of a foreign body in the partially emptied bowel. There is no recollection of these movements or of talking or crying. Amnesia is complete for all events from the time of the beginning of the injection.

The depth of anæsthesia is deceptive; it cannot be estimated by the usual tests. Readiness for operation can be ascertained by observing the effect of the preparation of the operation area or of the application of towel clips. Before a rectal or vaginal operation is started it is a good plan to express from the bowel the unabsorbed portion of the injection. The supplementary anæsthetic can be local, spinal, or general, the aim of the anæsthetist being, as already stated, to reduce to a minimum the amount of toxic or irritant drug. In a large percentage of operations the non-toxic, non-irritant anæsthetic, gas and oxygen, gives adequate relaxation for the surgeon and a most satisfactory recovery for the patient. A spinal anæsthetic provides excellent conditions for the performance of abdominal operations, but should not be used by the inexperienced.

The duration of sleep after operation varies considerably; it would seem to have a direct relation to the severity of pain in the wound. Following abdominal operation, therefore, sensation of pain is soon felt, and a sedative may be necessary. After less severe operations sleep may last for 1½ to 3 hours, the patient then awaking and almost invariably asking for a drink, following which he may sleep again, but the sleep is never so deep that he cannot be easily aroused. It will be seen that the recovery is a placid one, and is rarely disturbed by vomiting; the patient awakes as from a natural sleep and ready to take food.

Pulmonary complications are much less frequent than after ether anæsthesia; Basil Hughes, of Bradford, who has a large experience of avertin, tells me that its use has much reduced the mortality following major operations. Young has recently confirmed this statement (*B.M.J.*, December, 1930, p. 1023). The saturation of the tissues with ether, which, unfortunately, is still the method of choice in some clinics, will, I hope, shortly become a thing of the past, for even if we disregard the part it plays in the causation of pulmonary complications we must not forget that it does of itself produce shock.

The number of cases in which I have given avertin is over 320, in patients with ages ranging from 4 to 74 years. Morgan and Lees have recently published a paper (*Brit. J. of Ophthalmol.*, November, 1930) on the use of avertin in ophthalmic surgery, the majority of their patients being over 65 years, the oldest patient being 87 years. The operations for which I have used it cover a wide range, from operations on the abdomen, rectum, kidney, bladder, to the more simple procedures such as curettage and ligature of hæmorrhoids. The list also includes a considerable number of operations on the nose, mouth and throat, both in adults and children, and several thoracoplasties. I have satisfied myself that avertin does not abolish the cough reflex, and have never seen any harm from its use in operations which involve bleeding into the air-passages.

The contra-indications to avertin are stated to be serious disease of the kidneys or of the liver. It would be rash in the extreme to use it for a patient suffering from acute respiratory obstruction.

So satisfactory has been my experience with this drug since the dose recommended by the makers was reduced that I have come to look upon it as harmless when used with ordinary care, and so delighted are patients with the method, especially those who have previously been given an inhalation anæsthetic, that they do not fear operation on subsequent occasions provided that they can have avertin.

Avertin has been used for the relief of the spasms of tetanus, and largely in psychiatry. It has also been used in obstetric practice, although the ideal time for injection is not always easily gauged.

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The Editor will, at all times, be glad to consider articles or sketches, provided that they are accompanied by the writer's name and address, not necessarily for publication. The payment that the GAZETTE can offer is merely nominal. Authors who desire reprints of their papers should make their own arrangements with the printers when they return their proofs. All contributions to be addressed to *The Editor*, who does not accept responsibility for the views expressed by contributors.

Christmas in the Wards

Cornelius and Lazarus

THE conventional terms of approval and thanks would sound strained and misplaced when applied to the Christmas concert held for the patients of Lazarus and Cornelius Wards. From Mr. McGill to him who sang of "The Barrows in the Walworth Road," all combined to give a performance which was so obviously appreciated by the audience that it only required the sincere flattery of the youngsters, who might be heard for the next few days raising their voices in imitation of their favourites, to set the seal of unanimity to our approval.

Selection is, perhaps, invidious in an appreciation such as this, but it is as impossible to forbear mention of The Marionettes as it is of the gentleman troubled by visions of "Forty Fousand Frushes." Perhaps the latter best of all succeeded in carrying away his audience by the sheer extravagance of his "tremendous delirium."

Mention must also be made of Mr. de Gruchy, etc., who supplied both an orchestral interlude and Mr. John Littledale! This noble band must have had a strenuous Christmas.

In conclusion, it may be said that the concert was but the crowning effort of a week made as enjoyable as it can possibly be for patients in hospital, from which it may be gathered that Christmas in Cornelius and Lazarus was definitely A Good Thing.

Dorcas and Martha

AMID a setting of Old Japan beautifully arranged under the direction of Sister, we were entertained in Dorcas to a concert provided by Mr. Sidney Warwick and Mr. David Jenkins and a happy band from the Concert Artistes' Association, and, owing to their able management, we listened from 3 to 6 to a wonderful performance of varied numbers.

The audience, too, quite entered into the spirit of the afternoon, and, as a certain well-built benevolent gentleman, who delighted us for only too short a time, remarked, it was surprising how many ladies knew the barmaids' song; of course, Sister had heard it only two days before.

And then there was that cheerful chorus at the back, well filled with the Christmas spirit, who, on being told that they would not die if they worried, most certainly did not worry if they died, and rallied round and helped the artistes in every way they could.

And then there was tea in Martha. Sister, with anxious eyes on the clock and kettle, managed to correlate both, so that we had plenty of time to enjoy a magnificent repast which she seemed to produce at a moment's notice.

On occasions such as these it is the artistes who receive our thanks, but we must not forget the work and anxious moments of the Sisters when we look back on such a delightful afternoon.

Eyes

A VERY successful concert was held in the Eye Ward on Saturday, December 27th. The Works Department had very kindly erected a stage to an unprecedented height, on which, for three hours, an amazing procession of beauty and talent passed before our eyes. First of all, Mr. Ol. Ive tickled the ivories, to the unbounded delight of the patients—sightless beings—and the audience—happy folk. Those of us who had heard Mr. Julian Rose on the wireless knew that something good was coming. It came.

Half an hour later, when we had wiped the tears from our eyes, Mr. Norman Long occupied the whole stage and deluged us with jokes and songs. At this point Mr. David Jenkins and Mr. Sydney Wright leaped into the arena, followed by a genial company of affable wizards and other convivial spirits, who charmed all our cares away with song, recitation and dance. Next, Miss Winnie Melville sang us three delightful songs. The audience clamoured for more, but were unfortunate, as Miss Melville had to go. Then Mr. Gershom Parkington—masterful musician—and his Quintet charmed us all with their playing. The concert concluded with two songs by Mr. David Jenkins.

Of the tea, all we can say is that there are many people who are thankful that, in the Eyes Ward at least, such a thing as a gastric ulcer does not exist. We offer our thanks to Sister for a delightful time.

Patience and Samaritan

PATIENCE was very prettily decorated, and that, combined with an excellent spread at tea and a good party of entertainers, helped to pass a very pleasant afternoon for quite a large audience.

First we had the now famous Guy's band playing popular numbers for some time. Mr. Littledale's "Knocked 'em in the Old Kent Road" was very popular.

Anything musical at Guy's is not complete without Mr. Oliver Ive, so he gave us two songs from the Niggers, which went down very well indeed. Next we had Val Rosing, from Jack Payne's Dance Band, softly singing three of the latest to the accompaniment of a banjo, and, despite the queer shape of Patience's roof, this was much appreciated.

This was followed by an interval for tea, when everybody seemed to have at least four cups each and many more cakes, but Sister had provided enough and to spare.

After tea, Professor Gray—that "old-time veteran of the Halls"—delighted us with some excellent ventriloquism interspersed with some good old Scotch jokes. He was very ably assisted at the piano by a member of the audience.

Thus ended the afternoon's entertainment, which was a great credit to Sister and the nurses and other willing helpers.

Queen and Victoria

CHRISTMAS in Queen and Victoria was obviously well under way on Tuesday, December 23rd. Both wards sat down to seasonable fare at tea-time, with appetites stimulated by gymnastic feats necessary in arranging the charming decorations.

It was thought that with the end of Christmas dinner the zenith had been reached. But, as the days sped by, new diversions made themselves evident.

Owing to the kindness of Mr. Simpkins, many old friends entertained us on Boxing Day. Queen and Victoria enjoyed several hours' variety concert and popularity. We really did have a good time, and the Matron shared tea with us.

Saturday brought local talent, and a concert given by nurses, padre and students was much appreciated by Victoria. We have to thank Major Cartwright for a well-chosen cinematograph programme shown in Victoria on Monday evening.

Clinical

WE arrived at 3.30, in time to appreciate how much we had missed. We were just in time to hear the Remnants Party bursting forth in a very good number, the name and tune we have forgotten (that is the worst of Christmas, or perhaps the best—one does forget it all so quickly). Miss Winnie Melville then sang two songs in the delightful fashion which we have grown to expect from her, and the Remnants Party again burst into song. Mr. Chamberlain and Mr. Sutcliffe sang two of their hits from the Niggers, and Mr. Ol. Ive then assaulted the piano in a very successful fashion. He was supported in this by a full chorus of six Clinicals.

After this things grew hazy, but we know that a very good tea was served. Things grew even hazier after this, and we cannot remember quite clearly how the whole affair finished; but this fact does stand out, that it was a very good afternoon and that our thanks were due not only to the artistes, but also to the noble work carried out by Sister and her band of devoted nurses.

Stephen

THE Stephen concert was an unqualified success; from the second it began to the moment it closed it was a romp of joy and a riot of fun. The entertainment was unique in character, and seldom can any audience have been so grateful to the artistes concerned as on that day of paradoxies. The shrieks of both young and old alike bore witness to the talent, the undoubted talent, of those who gave up their day of rest to amuse the sick and/or suffering of Stephen Ward. On a similar, if not higher, pinnacle must be placed the Visitors' Tea, because, while cleanliness comes next to godliness, we all used the currant cake.

Mary

THE Mary concert was given by the Remnant Concert Party on Friday, December 26th, and provided most pleasant entertainment for a large audience.

The versatility of the performers held the astonished listeners spellbound with raptures of delight, and the children enjoyed themselves beyond all measure—strange to say, without serious results.

Having done ample justice to the excellent fare provided by Sister, the audience then settled down in soporific repose to complete a momentous day's amusement.

The grateful thanks of all are due to Sister Mary and her untiring and willing workers, whose efforts contributed largely to the success of a memorable afternoon.

The Niggers, 1930

A FINE drizzle was falling, and the sun was weakly attempting to shine, when the College gates were thrown open and a column of gaily dressed and painted residents streamed across the Maze Pond in dismal fashion and arranged themselves on the steps of the Colonnade. After smiling in approved fashion at the photographer they straggled back to the Residents' Room and put a few finishing touches to their costumes (and their livers). The condemned men were then led into Eyes.

Robson broke the ice splendidly by throwing back his head and singing in a most spirited fashion the "Song of the Dawn," and elicited great applause with his parody, which we cannot resist quoting in full :—

Wake from your sleep, Ruth and Barnabas,
Take the pads from every eye.
Clean up the lids, wipe away the pus,
Mr. Eason draweth nigh !

He is coming for the first time since June,
We haven't seen him for many a moon.
Life up your voices, help to make the welkin ring,
Here comes the Super, the Cataract King !
Yesterday your eyes were grey ;
Look ! this morning they're blue.
Is there any other man could do such things for you ?
Beat the cymbals, let the band begin to play ;
The Superintendent is coming this way !

The six Clinicals then occupied the whole stage and described in no uncertain manner their latest therapeutic measures ; and when they had retired, the audience was treated to a little soprano work by an elderly lady and a piccaninny, and some very throaty stuff by two tough old sailors, all of them O.P.O.'s.

Next in Queen, Blaikley described in song his passion for pure food generally and pork pies in particular, Bigby his weakness for dalliance over a garden wall, and Nash told in detail the long-suffering of a henpecked friend. By now the Niggers were entering thoroughly into the spirit of the affair ; no one had yet forgotten his words, and the choruses at times were almost in tune.

In Mary, Wheeler, laying aside for the moment his side-drum, told us of an unfortunate and unexpected incident in his past and parallelled it with another and even more unfortunate experience in the wards. In spite, or perhaps because of about four more syllables than were necessary in the last line, his song was greeted with loud applause.

The President, looking very like Napoleon, sang with great effect, and he was supported by an enthusiastic chorus, not very much in time but still enthusiastic. Robson then told us of a certain weakness he had for looking after the comfort and personal cleanliness of his beloved one.

They then reached Clinical, where the six Clinicals, swaying as one man, sang to the tune of "Just like in a Story Book." Sutcliffe explained diffidently his aversion to a certain but unspecified young woman, and then sang the parody :—

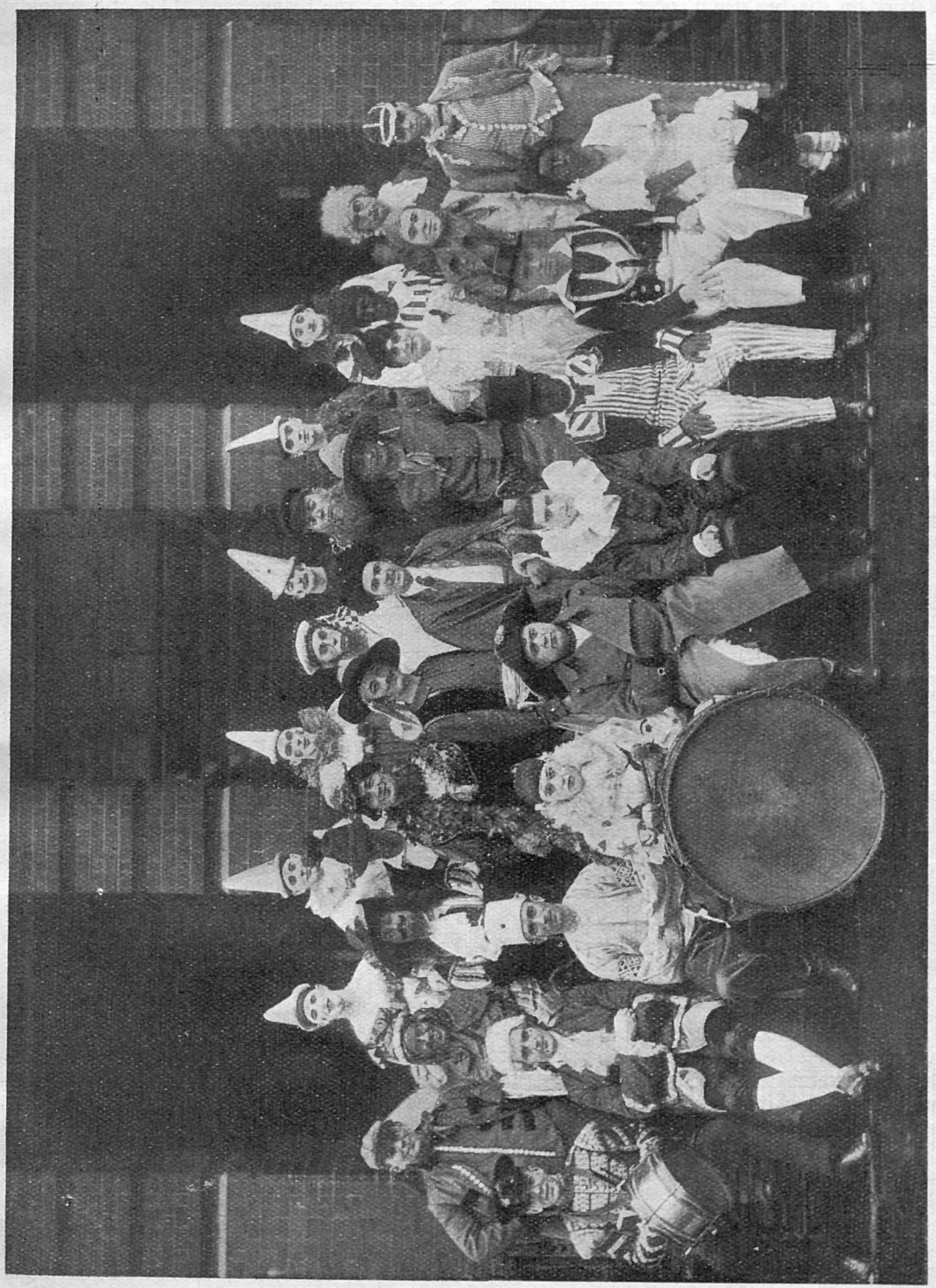
Have you ever seen the colon in a sigmoidoscopy ?
If not, Hurst's the one to show you, just take it from me.
If you're feeling real anæmic, asthmatic or sad,
Hurst's the very person to make you feel glad.
Chorus—
Of all diseases you can find,
Of colon, stomach or of mind,
There's only one who can diagnose the lot.
On Tuesdays you will always find
Him trying to improve the mind
Of nigs. from afar
On achalazia.
All patients with aerophagy,
D.U.'s, G.U.'s, or S.A.C.,
Are all the same to A. F. H., for he
Simply puts them on a diet,
Just to keep their stomachs quiet,
And treats their lump with a dose of N.A.B.

Chamberlain sang of a dear female friend of his who was proving to be a great comfort to him (and his purse).

In Stephen, Southwell, looking a costermonger to the life, sang with marvellous effect, "While the rich man rides by in his carriage and pair." He was succeeded by Robson and Ive, who sang together of the disastrous effects of Spring on a young man's fancy. Wheeler finished the programme here with "If the Nightingales could sing like you," the chorus of which was bravely attempted by the Niggers. Having done this, they dispersed to lunch, and when they reassembled in the Out-Patients' Hall at 2 p.m. some of that anxious, drawn look was gone from their faces.

The Landon Tea was in full swing when they arrived, and, as usual, their voices were drowned by those of the hundreds of brassy-throated Borough children. Another short interval on the Dental Floor helped to erase some more of their hunted look, and it was almost with assurance that they burst into Addison. With assurance, too, Massa Johnson declaimed he was an airman, and Reading complained of his father's harshness in not buying him a bow-wow.

Another O.P.O., a tall, bearded sailor, invited the audience to sing the Barmaid's Song, and, elated with success, the Niggers proceeded to Dorcas, where a tall, graceful lady with copious golden curls insisted on her gentility of manner



THE NIGGERS, CHRISTMAS, 1930

and speech. Popplewell, who had been doing hard work on the big drum, now came forward and predicted a good time coming, and Nash dolefully concluded with "Two Lovely Black Eyes."

In Martha, the tall, bearded sailor again burst into song, this time inviting us to tell him the ætiology of Maggie's cold; the chorus told him (they, for some reason, seemed to know). Robertson then expounded the virtues of the simple, care-free life, "Living in the sunlight, loving in the moonlight," etc.; and a handsome cavalier sang in a mellow voice the Stein Song. This broke up the party, which retired to the Surgeon's Room for a short time to restore the damaged tissues.

On their reappearance the Niggers sang with even greater violence and with even less knowledge of the words and the tunes than before. Pitts, in a rather daring frock, sang that old favourite, "Daisy Bell," and the H.S.'s leapt to their feet and put the audience through an intricate catechism on who loved whom and how. Southwell, to the tune of "Wrap me up in my tarpaulin jacket," sang the following:—

Here at Guy's there are thousands of children
Who weekly the Out-patients throng,
All praising the dear name of Cameron,
And each of them echoes this song.
Chorus—
Wrap me up my glucose in a packet,
Three teaspoonsful four times a day;
'Twill correct my deranged liver function
And make me once more bright and gay.

Have you got eneuresis or nightmares?
Are you sick in an L.C.C. tram?
Are you one of those bright little buttons
What's caught stealing sugar and jam?
Chorus—
Wrap me up my, etc.

Do you suffer from nervous prostration?
Have you got big, dark rings round your eyes?
Then it's obvious your only salvation
Is to come and see Hector at Guy's.
Chorus—
Wrap me up my, etc.

In Patience and Samaritan the Niggers were tightly hemmed into a corner by an ever-increasing crowd. Bigby, looking more nautical as the day wore on, sang "Her golden hair was hanging down her back," and he was followed by another complaint in a very cracked soprano that "Daddy wouldn't buy me a bow-wow." Nash once more, and even more dolefully than before, sang "Two Lovely Black Eyes."

The party moved down to Naaman and Christopher, where Popplewell once again predicted in song a good time coming, and Payne reasserted his claims to be a lady. Ive, accompanying himself at the piano, sang "On the sunny side of the street."

In Job and Luke, Wheeler repeated that the thought never had entered his head (though we found it hard to believe and harder to sing), and Plummer, a most lugubrious cowboy, sang "I'm so happy, ever so merry and bright."

The Stein Song was once more perpetrated, and, after the outburst of popular resentment had died down, Smallshaw and the R.O.'s explained their matrimonial mistakes in "Trinity Church." The two sopranos and the two bass O.P O.'s then again startled the audience with "Barnacle Bill," and before the crowd could do anything the Niggers fled down to Lydia. Here Ive sang "Lazy," probably the most popular song of the entire programme, and followed it with this parody:—

Every time I have a take-in I feel so very tired;
With languor I'm inspired; I never want to take-in.
That's why I've a dreamy manner that's generally admired.
I lie low and I go dead slow;
For though it's wrong to be, I want to be
Lazy; yes, I want to be lazy.
Wherever there's work in the ward, I feel thoroughly bored.
When in a hurry they call out "Ive,"
I never hurry, they have to wait till I arrive.
I want to lazy here for days without number,
Just to gaze on the Maze Pond and slumber;
And while most of my betters are sweating blood in the theatres,
Instead, I'm in bed being lazy.

Lomax again inquired about Maggie's cold, and Plummer, sadder than ever, reiterated "I'm so happy, ever so merry and bright."

At last the Niggers reached Astley Cooper, where Blaikley, although he was wearing an extravagant Russian costume, extolled the virtues of woad as the ideal form of clothing. (Personally, we feel very strongly that, if woad has anything of the clinging character of burnt cork, it is much over-rated as a form of self-adornment.) Robson and Ive again sang a duet, and Southwell sang once more in a true costermonger voice. Massa Johnson then finished the entertainment with his airman song, but at this late hour his voice could not do him sufficient justice, and his larynx rather stalled over some of the top notes.

The choruses on the whole were very good, most of the Niggers knowing their words and quite a few being able to sing near enough to the tune as no matter. Wheeler on the side-drum and Popplewell on the big drum were indefatigable, and Ive was his usual alert and agile self at the piano. Massa Johnson was superb; he grew

more and more Napoleonic every minute, and when the Niggers sang the chorus in the wrong place he looked like the popular print of 1812.

The jokes on the whole were not so good as last year; one or two good ones stand out:—

"Why is the hospital laundry like Gibb?
Because one stiffens the collars and the other collars the stiff 'uns."

And Smallshaw's—"Why do I always smoke a pipe?
Because one Fagge a day is more than enough for me."

—are perhaps the best.

Lastly, we must not forget Bishop, who, although behind the scenes, did much valuable work in watering and grooming the exhausted Niggers between rounds.

The Medical Curriculum in the United States

IN writing one's impressions of medical work in America it seems that the best beginning can be made by comparing medical education with that in England.

It is common knowledge that until comparatively recently the conditions at many American medical schools were far from satisfactory; considerable efforts have been made to do away with the abuses, and, although there are doubtless still in existence some degree-conferring bodies which are not above suspicion, the general state of affairs is enormously improved, and in the case of the better-known colleges a very high standard of work is maintained.

I must make it quite clear at the beginning that my personal experiences are as yet limited to one medical school, but, for the most part, the following remarks can be taken as applying almost everywhere in the States.

The first big difference between the American and English schools is in the period at which the medical curriculum commences. After leaving high school at 18 years of age, it is usual to proceed to college and obtain a B.A. or a B.Sc., exactly as happens in England in the case of Oxford and Cambridge students. Now, although it is not compulsory to possess a University degree before entering medical school, it is almost impossible to get into a good school without one. For instance, in 1910 15 per cent. of students on entering medical school possessed either a B.A. or B.Sc. Last year 70 per cent. of students in all States held one of these degrees. The American Medical Association which published these figures advises the acceptance of only those students who possess a degree, but does not press it in all cases, for it will clearly be hard at times on those who cannot afford to spare the additional time.

The medical school here (Washington University) has just made it a rule that anyone applying for admission from now on must possess a degree; in actual practice it is rarely that a student has been accepted without one, even though no such rule has actually been in force. This selection is made possible by the way in which the supply exceeds the demand. For instance, this year there were 590 applications to start the course; of these only 75 were accepted. The number of students in each year (or class) is purposely limited to this figure, for it is felt that any larger number would be too difficult to teach satisfactorily. The other big medical schools have just the same excess of applicants over vacancies, and it can be seen at once that there is a high degree of selection from the very beginning. In addition to possessing a degree, students are also expected to be able to read at least one modern language; some schools demand a knowledge of at least two. The work usually done in the first year in England (Chemistry, Physics and Biology) has also been completed before starting medical school.

As a degree course takes four years, it follows that the minimum age at which medical studies can be begun is 21 or 22, considerably older than the average age at an English hospital. This difference in age is most striking; the American medical student is undoubtedly much more mature than his fellow student in England. He has already spent four years living away from home, and in consequence is much more settled. As the course lasts usually four years, it is not usual to qualify before the age of 25 or 26, and if one or two years are spent in internships (as is the custom), very few men are ready to start practice before 27 or 28, and if more senior resident appointments are taken the time is even later.

This fact is causing considerable discussion, as well it might. It is no small matter that a medical student has to be supported by his parents until he is, perhaps, nearly thirty. It is felt that too much time has been unnecessarily wasted, and there is no doubt that this waste of time occurs in the pre-medical years at High School and University. The object of taking only students who have spent all their time up to the age of 22 or 23 in acquiring a general education is to ensure that the budding physician is a man of culture and high intelligence. Unfortunately, I believe it works out that they are no more highly cultured than anywhere else in the world!

Work is divided into four years, of which the first two are pre-clinical and the last two are spent in the wards. Work lasts from October to July, with no breaks of any consequence in between. Even during clinical studies work finishes in July, except in exceptional cases where vacation work is necessary. As we well know, at Guy's the students play a very important part in the smooth running of the hospital machine. In America, such is not the case, and no active part is played by students in hospital work.

The students of one year keep in a " class " all through hospital. There is an examination at the end of each year, and when this is completed the whole class moves up to the next grade, so that the senior class all graduate at the same time at the end of the same academic year.

This brings one to another big difference in American schools, the principle of examination. In England, as we all know, an examination is a thing to be passed, and until it is passed satisfactorily one does not go forward. The system is quite different here. Examinations are held and the questions are of quite high standard, but the pass list is well over 90 per cent. This is because the examinations are conducted by one's own teachers and credit is given for the known merit and diligence of each candidate from personal knowledge. The secret of it all is the constant and severe weeding-out process that goes on all the time. I have already shown how considerable selection has been made at the very beginning. Directly work commences, weeding out begins as a constant active process. An effort is made to eliminate all unlikely candidates in the first year so that too much time shall not be wasted. All students are watched carefully, and after two months there is an examination. If any do badly they go ; those who do only moderately well are firmly talked to and given another trial. In January there is another examination, and any " lame ducks " have considerable pressure brought upon them to leave. Very often it is found that the faulty ones are not very keen, their father has been a doctor and they have been almost in duty bound to follow medicine, or there is some other similar reason. These usually readily accept the suggestion that they are not fitted for the work, and I am informed that many of them have returned in later years and expressed thanks for the advice. At the end of the first year there is yet another examination and more elimination. This goes on until the fourth year, and it can be readily seen that only well-tried students survive to complete the course. Their character for work is well known, as is also their intelligence, and when, at the end of the fourth year, the M.D. is taken, it is quite unusual for any to fail, although the questions are fairly stiff. Sometimes a student is sent back to do the year's work again, but even when this is done it is found that there is usually not much improvement ; the degree is almost invariably conferred the second time. It is felt that if a man has been allowed to get so far it is not fair to turn him down and refuse to give him his degree. Although on the face of it this sounds much looser than the English custom, a little thought will show the efficiency of the preliminary weeding-out process ; and in the vast majority of cases there can be little doubt that if a man has satisfied teachers who have been watching him carefully over a long time, it is perfectly just to pass him even if he should have failed a few marks in an examination paper.

The M.D. which is conferred is not a licence to practise. To obtain this a student has to pass the examination of the State in which he intends to live. Obviously, if a separate examination were necessary for each State life would become hard at times for those who wished to change their residence ! Some reciprocity between States is desirable, and originally, I understand, this custom of reciprocity was widespread. However, this soon proved unsatisfactory owing to graft and corruption, and most States have ceased to allow reciprocity except with a few special States. Neighbouring States find the need of it most ; for instance, Missouri and Illinois, which are next to one another, honour each other's State examination.

In addition, there is now held a National Board's examination, which, although not actually official, is recognised by 39 out of the 48 States. The standard is distinctly higher than the separate State examinations, but is easily within the reach of a good graduate. Its advantages are obvious.

Examination fees are of interest. For the M.D. no fees are paid except a diploma fee of 10 dollars when the degree is conferred. The fee for State examinations varies from 25 to 50 dollars, depending on the State ; and, of course, if exemption is claimed in a State which recognises reciprocity the fee is payable before licence to practise is given. I have asked several people why more do not take the National Board's examination, and one point always given in reply is that the fee is 100 dollars ; when one thinks of the money that can be spent in England on examination fees, 100 dollars seems not much to quibble about ! While examination fees are smaller than at home, tuition fees are heavier here ; they are 400 dollars a year.

It thus means that when a man has finished in medical school he has his M.D. and one or more State examinations allowing him to practise.

Higher examinations as they exist in England are not known here. The general policy is that it is not advisable to waste too much time in taking examinations; that a young man's time could be better employed. That is certainly something to consider if the young man is at least 26 before he can even qualify!

The Fellowships of the American College of Physicians or of Surgeons are elective, and not awarded by straight examination; the applicant must have been graduated at least five years, he must be sponsored by others, and in the case of the American College of Surgeons, I understand he has to write up 50 major operations which he has done himself and 50 at which he has been first assistant. An examination may be required. The College is a comparatively recent institution, dating, I think, from about 1911, and the Fellowship is not looked upon in any way like the Fellowship of the English College in England.

R. C. B.

The Future of the Physician

Abstract of a Lecture read before the Royal Medical Mutual Admiration Society

DR. BLACK BILE,—I presume that, as opener of this debate, my duties are firstly to define what is a physician, secondly to justify his existence, and finally to indicate the lines on which he may hope to have a future. It is frequently held that the great days of medicine are past, and that physicians of the rank of Hipocrates, Galen and Im Hotep are past; to this I would reply by calling attention to Dr. H——, Sir —— and myself. There is, I maintain, nothing to choose between us except the immensely greater advantages enjoyed by our earlier brethren.

But to my definition of a physician. A well-known poet once wrote in misguided but mellifluous verse:—

"The Law is the true embodiment
Of everything that's excellent."

A beautiful thought, but wrong. It is medicine that should be the Palladium of this world's good, and the physician is the embodiment of that, the double-distilled essence of human goodness.

There you have my definition of the physician—a god-like figure to whom facts, fancies and every created being should bow. To justify his existence is easy; it is well for the world that Good should exist, obviously, therefore, the physician is essential to the well-being of mankind. Further, who so competent to sign the death warrant, to "carry the coffin," in fact? Who, indeed?

Here we should inquire why it is that a faint breath of doubt has of late ruffled the placid self-esteem of these almost celestial beings. The cause is not far to seek. In the good old days, to quote again:—

"The doctors gave them physic,
And they died."

Physic, may I inform those of you who, not being physicians, have no "kulture," means Nature; death is the great final tableau of Nature; the physician is the high priest of Nature's greatest rite.

In the great old days to touch the dead was death, or at least defilement, and then, indeed, the physician's word was final. Observation was all he relied on; possibly he felt a pulse or looked at a tongue, but not often, lest these experimental investigations should bias his pre-formed opinions or provide him with data with which his education had not fitted him to deal. These days, alas! (I see two surgeons and a bio-chemist in my audience or I would quote, in Latin, an old tag from Horace.) These days, I repeat, are gone, but not, let us hope, for ever.

How did they go? Firstly, the insatiate curiosity of third-rate men who, doubting the correctness of their diagnoses, examined the bodies of the slain, and found, not infrequently, that they had been wrong. Surely this discovery should have made them forsake a calling for which they were so obviously unsuited; but no, they actually dared to examine the fruits of the labours of other and worthier men, or should I say gods? To do abhored post-mortem examinations on subjects slain by hands more sure than their's, hands whose controlling brains never doubted the correctness of their diagnoses. So the rot began. (Yes, I'll stop soon.)

Next came the introduction of various mechanical means of diagnosis. This little wooden tube, made in France by the firm of Laennec, has recently been brought to my notice, and I understand that by its use it is possible to "auscultate" (this means listen to) the chest, a very disturbing performance for which an anæsthetic is not, as a rule, required. This innovation is of greater significance even than the practice of post-mortem examinations, as by its means the physician's diagnosis can be upset while the patient is actually alive, which, as any intelligent physician can see,

is equally unsettling for the patient and his physician.

I confess that, in deference to popular clamour, I am in the habit of carrying one of these abominations, but I have found that, by inserting a used match stick in the lumen of the instrument, the irregular sounds it produces are stopped, and a short period of rest and quiet can be obtained.

I refrain from touching on the various other "investigations" with which the unfortunate patient is now troubled, though if any of these are demanded by the patient or his friends I make a habit of sending a small soiled piece of cottonwool, or a little blood smeared on a glass tube, to one of the cheaper "laboratories," say that attached to the Faring Worse Hospital, who are very reasonable and whose reports I never allow to interfere with my preconceived ideas. I seldom read them, which I believe to be just as well.

Now for my constructive criticism. Let us return to the Golden Age of Medicine, let us ban every form of experimental investigation, let us banish all pathologists, bio-chemists, bacteriologists and radiographers. We English are bad advertisers, but we physicians must fight against our unnatural diffidence, let us tell the world that we know, let us see to it that what we say goes.

Lewis insists that the pursuit of curative medicine conflicts with the advancement of scientific medicine. That is about the only thing I have ever heard in favour of "curative" medicine, supposing such a thing exists. But don't be mislead by such half-truths. Down with medicine, both "curative" and, more so, "scientific." Up with the physician!

A further strong article on the Future of the Surgeon will follow. (*I don't think so.*—ED.)

Correspondence

Dental Society Annual Dinner

To the Editor of the GAZETTE

SIR,—The Annual Dinner of the Guy's Hospital Dental Society will be held at the Trocadero Restaurant, Empire Rooms, on Saturday, February 28th, 1931. Mr. H. C. Malleson, President of the Society, will preside.

Tickets, 14*s.* each (students, 10*s.* 6*d.*), exclusive of wine, may be obtained from the Hon. Secretary, Mr. E. V. B. Widdowson, Dental Society, Guy's Hospital, S.E.1.

Yours, etc.,

E. V. B. WIDDOWSON.

Dental Society,
Guy's Hospital, S.E.1.

"Women in Medicine"

To the Editor of the GAZETTE

SIR,—In the GAZETTE of November 29th last the writer of "Passim" disguises his feelings on the woman medico question to such an extent that one cannot gauge the workings of his inmost soul, although one suspects a big element of the green-eyed monster. He commences by criticising the adaptability of women to a medical life, and in a later note eulogises one of the greatest women pioneers of medicine and surgery, who has recently departed, leaving a world-renowned record. One point in each of these leaders appears to me to call for comment.

(*a*) "If woman could but realise the power that lies in her sex we would see no more of this thrusting into the affairs of *man*" ("Passim"). Without wishing to be facetious or solely gynæcologically-minded, I partly agree, and feel that one of woman's chief spheres of action lies in thrusting into the affairs of *woman*.

(*b*) "She fought for a cause not yet won" ("Passim"). I disagree; woman has taken her place by the side of man in medicine and in most of the work is as capable as the lord of creation, whilst in certain departments she is more suitable. The opinion of "Passim" on what he considers the most suitable occupations for the thousands of highly-cultured single women who are bound, by force of circumstances, to work for a living, would be interesting.

I speak from the experience of having worked with a lady assistant for five years in general practice. Not only is she in as great demand as I am (this may possibly mean little, since 30 years of practice has tended to sour one's pristine amiability), but both men and women patients equally request her attendance, and by children she is worshipped. I admit she *is* a lady and has a kind and sympathetic nature, but she is not an exception to most women doctors I have met.

Is it not possible that, in course of time, a female who requests a man to attend her under certain conditions will be considered pruriently-minded, and that the same will apply to a man requesting woman's aid for a hydrocele?

Yours, etc.,

A. H. B. K.

"Future of Surgery"—and Guy's Men

To the Editor of the GAZETTE

SIR,—I venture to write to you because I know that many Guy's men who have read the lecture in the GAZETTE on the "Future of Surgery" regret that Dr. Hurst does not mention the work of a Guy's man, regarded by many of his pupils as the greatest surgical pioneer since Lister—Arbuthnot Lane.

It is the custom of Guy's to hide her light under a bushel, but, even so, it is surprising to find that even in the *Lancet* of December 20th there is an article on the "Neuro-Muscular Obstructions of the Gastro-Intestinal Tract," in which no reference is made to Lane's work.

All Guy's men should know that Lane was the first surgeon to focus attention on the small intestine and colon as sources of ill-health.

Again with regard to the surgery of the chest, it should be a Guy's tradition that Lane was the first surgeon to resect a rib in empyæma, despite opposition from the physicians.

On these and many other grounds, Guy's should be given credit for many contributions to the advance surgery has made in the past 50 years.

Yours, etc.,

W. E. TANNER.

38, Queen Anne Street,
Cavendish Square, W.1.

Sport

Rugby

Guy's v. Coventry

ON Saturday, December 20th, the Hospital visited Coventry, and were defeated by 2 placed goals and a try (13 points) to 2 tries (6 points).

Thus the home side fully atoned for the heavy reverse which they received at Honor Oak Park earlier in the season.

Guy's were not quite at full strength, as O'Shea and Robin were unable to make the journey.

It was a very fine game, and from start to finish a tremendous pace was maintained. The home pack put up a splendid fight, and, with Roberts hooking magnificently, the Coventry backs were given plenty of scoring opportunities. However, the Hospital backs were in excellent form, and, through tackling in first-class style, they repeatedly turned defence into attack.

Several of the movements initiated by the Hospital threes deserved a score, but when a try appeared inevitable Boucher, the Coventry full-back, on two or three occasions made a marvellous save and cleared his lines.

Coventry are indeed lucky to have such a capable reserve as Boucher, whose admirable tackling, clean fielding of the ball and accurate kicking proved of inestimable value to the home team.

Both Windsor Lewis and Giesen were in excellent form during the first half, but after the interval the former was so closely marked that he was given very few opportunities of opening the game.

Of the forwards, Popplewell, Morgan and Hogbin were outstanding in a pack which, man for man, was much lighter than Coventry.

Very early in the game Coventry took the lead as the result of a try by Clarke, which Blake converted. However, Guy's improved after this, and, maintaining a strong attack, Thomas and Hogbin both scored tries which were not converted.

Guy's maintained their lead well into the second half, until Coulson sent in Campbell for an unconverted try.

No further scoring took place until near the end, when Rowley crossed for Blake to add the extra points.

Team.—W. Lewis; D. E. Ashdown, J. E. Giesen, I. K. Thomas, G. A. Burrows; R. J. Eustace, Windsor H. Lewis (Capt.); J. S. Batchelor, C. W. Outred, J. R. F. Popplewell, J. A. T. Rowlett, R. G. Knight, T. Morgan, G. F. Lashmore, R. A. P. Hogbin.

Hospital Information, etc.

Pass List

LONDON UNIVERSITY.
FIRST EXAMINATION FOR MEDICAL DEGREES.
December, 1930.

F. A. Bleaden
H. V. Brown
A. J. Colbert
J. E. Giesen
H. A. Leggett
A. N. Redfern
A. E. K. Salvi
D. P. Stevenson
F. Taylor
A. Wardale

M.S. EXAMINATION.
December, 1930.
BRANCH IV.
Laryngology, Otology and Rhinology.

†R. J. Cann W. A. Mill

† University Medal.

M.D. EXAMINATION.
December, 1930.
BRANCH I.
Medicine.

A. B. Kettle. G. O. Mitchell.

OXFORD UNIVERSITY.
BACHELOR OF MEDICINE.
December, 1930.

R. S. Harrison. J. M. Lees.
E. H. Rink.

Appointments

N. Burgess, M.D., M.R.C.P., Consulting Dermatologist, Bridgwater Hospital.

W. S. McConnell, M.B., B.S., Hon. Assistant Anæsthetist, Royal Dental Hospital, Leicester Square.

Change of Address

W. M. Brown, M.D., F.R.C.S., 389, Papanui Road, Christchurch, New Zealand.

S. C. H. Lane, M.B., West View, St. Leonard's Road, Deal. *Deal* 588.

Notices

Guy's Hospital Medical School

M.R.C.P. COURSE.

February—March, 1931.

A COURSE in preparation for the Examination for the Membership of the Royal College of Physicians of London will commence on Monday, February 2nd. A limited number of vacancies is available, and Guy's men wishing to join the class should send in their names at once to the Dean, at the Medical School Office.

T. B. JOHNSTON, *Dean.*

FINAL FELLOWSHIP COURSE.

February—May, 1931.

A COURSE in preparation for the Final Examination for the Fellowship of the Royal College of Surgeons of England will commence on February 18th. Guy's men who wish to join the class should send in their names to the Dean, at the Medical School Office, as soon as possible.

T. B. JOHNSTON, *Dean.*

North-Western University Dental School, Chicago

SCHOLARSHIPS—*October*, 1931

TEN Scholarships are offered by the North-Western University Dental School to graduates of Schools outside of the United States. Any qualified Student who desires to make application for nomination for one of these Scholarships should communicate with the Dean, Guy's Hospital Dental School, London Bridge, S.E.1.

Three programmes are available :—

"(1) An undergraduate course leading to the degree of Doctor of Dental Surgery. The minimum requirement will be the full Senior course, plus whatever clinical service may be deemed necessary to gain the approval of the Faculty as to the quality of operations in all Departments. The time required to earn this degree will depend very largely upon the differences in the curricula of the foreign schools in comparison with that of North-Western, and may vary from 9 to 18 months. It is expected that Students recommended for Scholarships will be above the average ability, and will, therefore, be able to complete the requirement in less time than would the average Student. This Scholarship consists of tuition fees for from one to six quarters ($100.00 per quarter), and all necessary books and equipment (about $250.00) to be supplied by the School. The School operates on a "four-quarter" plan (Autumn, Winter, Spring and Summer Quarters), and any number of quarters may be taken consecutively. Registrations for this course should be made to begin with the Autumn Quarter (about October 1st)."

"(2) A graduate course, leading to the degree of Master of Science in Dentistry. Candidates must present an educational record equivalent to that required for graduation from North-Western University Dental School. (Five years beyond High School, which may consist of courses in College of Liberal Arts and Dental School, separately or combined, with graduation from the Dental School). Four graduate courses are offered, as follows : (1) Oral Surgery ; (2) Orthodontia ; (3) Operative Dentistry and Dental Pathology ; (4) Prosthetic Dentistry. Each graduate Student will be required to devote part of his time to original investigation of an assigned subject and to submit a thesis. The time required to earn this degree may vary from 9 to 12 or possibly 15 months, although the majority complete the course in nine months. This Scholarship consists of tuition for the graduate course ($520.00), including all necessary books and equipment, which will be supplied by the School. Registration for graduate courses should be at the beginning of the Autumn Quarter (about October 1st)."

"(3) Those who have not the educational record to qualify for registration for a graduate course, leading to the degree of Master of Science in Dentistry, may register for a year of post-graduate clinical work. A special programme will be arranged for each Student. Upon the satisfactory completion of the course, a certificate of attendance will be awarded. This course does not lead to a degree. The time required will be nine months, beginning with the Autumn Quarter (about October 1st). This Scholarship consists of tuition for three quarters ($500.00), including all necessary books and equipment, which will be supplied by the School."

T. B. JOHNSTON, *Dean.*

Birth

GOUGH—On December 9th, 1930, at Lisdoonvarna, Cassiobury Drive, Watford, to Aileen (née Stoker), wife of A. Staveley Gough, M.B., F.R.C.S., a daughter.

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P. V. R.

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PASSIM

" Be not the first by whom the new is tried,
Nor yet the last to cast the old aside."

ONE is bound to adopt, we strongly feel, at the very outset of one's career a certain definite and unswerving attitude towards progress in matters scientific, and it is, at times, one's duty to sit down and carefully readjust one's preconceived ideas on some scientific principle. Such a readjustment we have forced ourselves to consider in connection with the question of anæsthesia. New methods of technique are so rapidly crossing our horizon—we speak, of course, from the point of view of the " occasional " anæsthetist—that we are inclined to describe their flight in the words of a well-known modern advertisement: " That's Sodium Amytal, that was."

We realise, of course, that to the " habitual " anæsthetist—or, more strictly, the " theoretical " anæsthetist—this flight is rather in the nature of a funeral procession, for though we have heard the name of some new proprietary anæsthetic substance for the first time only this week, he will probably tell us that it was first used by Hickman a hundred years ago, and that he personally abandoned it a year ago. Nevertheless, to us it seems that modern anæsthesia is represented by a kaleidoscopic Babel of unintelligible names, and as we sit apart watching the turmoil we must remind ourselves of the fundamental principles of the subject.

Anæsthetics may be divided into those controllable by continuous administration according to the reaction of the patient during the operation, and those controlled only by past experience of a suitable initial dosage. To the first type belong the old-fashioned Gas-Oxygen, Chloroform and Ether, whereas the other type consists of all forms of spinal, rectal, intra-venous and oral anæsthetic substances. We need scarcely consider the inhalation vapours, for their advantages and disadvantages are well known to us all.

With regard to the other forms of anæsthetic, we believe that everyone will agree that no substance has yet been discovered by the administration of which absolute relaxation and analgesia can be guaranteed, unsupplemented by a little gas and oxygen or novocain. They must, therefore, be regarded simply as methods of induction, and possess only two advantages, namely, that of sparing a nervous patient the unpleasantness of an inhalation induction, and that of administering a minimal quantity of ether or chloroform to patients whose condition contra-indicates the use of these drugs.

If we would be true to our text, the old-fashioned couplet which opens this paragraph, we must consider earnestly their disadvantages. Their first, their most important, almost their only disadvantage is their lack of control. It can, we believe, be said with truth that 0.1 grm. per kilo body weight of avertin can do no harm, and therefore we—again may we remind you, the " occasional " anæsthetists—have incorporated it among our stock in trade, for the experience of the pioneers has, we believe, been responsible for producing an excellent inducing agent which has the added attraction of securing amnesia. But what of sodium amytal, what of Nembutol, what of the host of other intravenous or oral anæsthetics? We foresee an Utopia where everyone shall receive Coal Gas by the Umbilicus . . . Or are we ultra-conservative?

THE last of the annual peri-Christmas events of the hospital is rapidly approaching—the Residents' Play; as may be gathered from the haggard, hunted look on the faces of the Residents and the weary strains that float through the night-fog from the Physiology Theatre every evening after dinner. The play will take place each night from Monday, February 9th—which is the dress rehearsal—to Friday, February 13th. Applications for tickets should be made to Mr. S. J. Wheeler, The College,

Guy's Hospital, as soon as possible. On the night of the Dress Rehearsal seats will not be allotted. The tickets are entirely complimentary, but we would point out that the cost of production is considerable, and that the Residents would gratefully appreciate any small subscription that sympathetic applicants might care to send, even as much as or more than applause at their poor histrionic efforts on "The Night."

THE annual Residents' Ball was held on Friday, January 16th, at Grosvenor House, and was, in our opinion, an unqualified success. Some there were who looked with trepidation on a move from the May Fair, where the ball has been held for the last two years; others welcomed it. We would, however, congratulate the Residents on making the change, for there was considerably more floor space and—an important point—more accommodation for sitting out. The band was good, and we enjoyed our supper very much. We congratulate the Ball Committee on their quiet and unobtrusive efficiency. We have been asked to announce that a Yale key and a bunch of keys were found and may be reclaimed on application to the President of the Residents.

WE have pleasure in reporting that the sale of greeting cards supplied by Ash & Co., Ltd., has reached the gratifying amount of £115 8*s*. 4*d*., to be handed to the hospital funds without deduction, and would heartily thank those who have contributed to this result by purchasing the cards.

WE would remind our readers that the annual subscription to *The Gazette and Directory of Guy's Men (Medical and Dental)*, 12*s*. 6*d*. post free, is now due, and should be forwarded to The Manager, The GAZETTE Office, Guy's Hospital, S.E.1.

THE *Directory of Guy's Men (Medical and Dental)* is now ready for distribution, and all subscribers to the *Gazette and Directory* will receive their copies through the post.

Subscribing members of the Clubs' Union are entitled to a copy of the *Directory*, which may be obtained on application at the Wills Library.

Non-subscribers may obtain a copy at the GAZETTE Office (Counting House), Guy's Hospital, S.E.1, price 2*s*. 6*d*.

Anæmia in Childhood

A Clinical Lecture delivered at Guy's Hospital, January, 1931, by Dr. A. C. Hampson

GENTLEMEN,—I have selected for our discussion this afternoon a condition which is not uncommon at any time of life, but which is, I think, particularly common in childhood.

Perhaps the main reason for this is that in the child reactions are very much more intense; whereas in an older person a stimulus may produce only a slight response, the same stimulus in a child may produce a result which is very obvious. Then, too, in an older person the picture of a disease is masked by so many added symptoms. Apart from these considerations, I think anæmia is commoner in childhood. Indeed, one may almost call it physiological; if anæmia be gauged by the comparison of the amount of hæmoglobin in the blood with that of the so-called normal adult, then all children in early life are anæmic. Taking 70 or 75 per cent. as a normal value for the hæmoglobin during the first six years of life, a comparatively small fall of 20 per cent. in the hæmoglobin reduces the figure to 50 per cent.; such a child is seen to be obviously anæmic. A sick child usually manifests its symptoms in reference to one of the important systems, and anæmia, like vomiting, is found in a variety of conditions. It is, in fact, rather to be regarded as a symptom than as a disease, and we should never be satisfied with it as a diagnosis until we have failed to find the underlying cause. Even then, the diagnosis is to be regarded rather as a confession of failure than as a source of satisfaction.

Going back to the question of the low value of the hæmoglobin in childhood, the baby is actually born with a high value, the average being about 110 per cent., but there is a rapid fall during the first few days of extra-uterine life. The first slide shows that very quickly this value reaches 80 per cent. The fall continues till the third or fourth month. There is often a slight rise at about nine months, and then the value remains steady at about 70 per cent. till the age of six years. Why should there be this fall? This is a question about which much has been written. It would appear that before birth the child needs a higher value of hæmoglobin. The blood of the child receives its oxygen from the blood of the mother through the intervening layers of cells in the placenta; the process is, in fact, as Gilbert Strachan says, similar in many ways to tissue oxygenation. The blood is not saturated with oxygen, and therefore a larger quantity of hæmoglobin is required. It will occur to you that the situation is comparable to some extent to the compensatory polycythæmia found in certain congenital heart lesions and in fibrosis of the lungs.

After birth, the child no longer needs this supply of hæmoglobin; Nature, however, insists on it receiving more; the placenta contains a considerable amount of blood, and with the child's first breath a large proportion of that blood is drawn into the body from the placenta. There is, therefore, an actual rise in the value of the hæmoglobin immediately after birth. I shall not spend long now in discussing the question of the fall in the hæmoglobin; it belongs to another story, which I hope to have the opportunity of discussing on another occasion. There are reasons for supposing that the red cell of the infant is more fragile, and more likely to be hæmolysed, particularly when the blood becomes fully oxygenated.

There is a factor in this question of hæmolysis which it is necessary to discuss at this stage. The amount of hæmolysis is considerable in the later weeks of intra-uterine life, and this is intimately associated with the storage of iron in the fœtal liver. I want to stress that this storage occurs chiefly in the last month of intra-uterine life, so that the full-time baby is born with a certain amount of reserve of iron. The premature baby, that born at, say, eight months, has a comparatively small store. The iron resulting from the haemolysis after birth is again stored chiefly in the liver.

With the rapid growth of the infant after birth comes the necessity for an increased supply of hæmoglobin, and for the production of this the reserve of iron is drawn upon. The only outside source of iron is the milk, and the amount contained in this is very small, that in cow's milk being less than that in human milk. The slide which I am now going to show you contrasts the hæmoglobin curves of the average breast-fed baby with those of the average artificially-fed child. You will notice that the latter are about 5 per cent. lower.

There is, therefore, a degree of anæmia occurring after birth, which depends to some extent on the food. Even if we are not entitled to call a breast-fed baby, in its physiological state, anæmic, we are entitled so to designate the artificially-fed infant. This is important, especially in the case of the premature child, with its small reserve of iron. You would expect such a child as it grows to become more anæmic than the child born at full term; and this is true, especially when, as so often happens, such a feebly-sucking child is fed artificially, and it may not be out of place here to stress the importance of getting such a child on the breast, if possible.

This subject acquires further importance when we remember that these anæmic babies, with tissues poorly supplied with oxygen, tend to be weakly; they are prone to infections, and, when such occur, their resistance is small. If, therefore, we possess any simple means of correcting the condition, as by the exhibition of iron, we are likely to save many lives, which, at the moment of applying the remedy, may not, perhaps, appear to be much in jeopardy.

May I now digress for a moment on the question of the diagnosis of anæmia? We are discussing the condition of the blood, and I know that it is not feasible in the case of every child who comes under your care to draw blood for examination. Whatever difficulty there might be in the case of the adult, in a child, if the lips are obviously of a good colour there is no need to discuss the question of anæmia. It is the pale child which may give rise to difficulties. How often a child is brought to a doctor because it is said to be anæmic, and yet the value of the hæmoglobin is normal. Pallor does not necessarily mean anæmia. The pallor depends on the amount of hæmoglobin in the capillaries, and if the superficial capillaries are closed down a child will often present a pallor which is striking in degree. It is, of course, an obvious point, but one which is often passed over. There is the well-known example of the child who faints; he has a good colour one minute, but the next he is white as marble. The value of the hæmoglobin has not changed. The child with vaso-motor instability is one of poor stance; the tone of the muscles is poor, and the blood tends to empty rapidly from the superficial vessels. The mother will often tell of the influence of posture or of emotional strain.

Now passing to the more frankly pathological conditions, there is one form of anæmia which starts in the physiological type which I have mentioned, but instead of the condition stabilising itself, it goes on to a grave anæmia, perhaps giving a reading as low as 20 per cent. Throughout, the child is slightly jaundiced, for the anæmia is hæmolytic. There may even be a little bile in the urine. Here, again, the infant differs from the adult. In hæmolytic anæmias at a later age practically never do you find bile pigments, as such, in the urine; in the baby, particularly in the new-born, it is physiological to find it, and even for several months, if there is considerable hæmolysis, there may be bile in the urine. There is very little to say about this type of anæmia, apart from stressing the importance of its recognition. The treatment I will mention later. The cells are fairly regular in outline in the earlier stages; there is not the degree of anisocytosis found in other conditions; the colour index is about normal, or just below normal There is no particular cause to which one can point. One is

tempted to suspect infection, because infection is the cause of another, somewhat similar type of hæmolytic anæmia occurring in infancy. But, when infection does occur in an infant, there is usually a fairly obvious source, such as sepsis of the umbilical stump in the very young infant, or obvious infection of the alimentary tract in a somewhat older child. Not only this, but the temperature usually rises as readily as the hæmoglobin falls. Above all, in the child with anæmia due to infection, there is the tendency to cyanosis of the extremities. In the other type of anæmia I have been discussing, there is practically never cyanosis.

True pernicious anæmia is occasionally, though, very rarely, encountered in a baby. Its stigmata are almost precisely those of the disease occurring in the adult; there is the lemon-yellow coloration—and you must differentiate this from the creamy-yellow colour of most anæmic babies. Perhaps this yellow coloration is a little deeper than you expect to find in the adult. The blood-picture is almost identical with that found in the adult, except for exaggeration; instead of the mean diameter being raised one or two μ, it is raised very considerably, so that there is no doubt about it. The degree of the crisis is exaggerated; instead of a gradual fall in the first attack, amounting, perhaps, to 20 per cent. of hæmoglobin, you may find a sudden fall of 50 per cent. in the course of a few days. Here I would emphasise that it is never safe to delay treatment. One such child died during the two days elapsing before admission could be obtained to hospital. Part of the next slide shows a micro-photograph of normal red cells; the second part is from a child suffering from pernicious anæmia, taken during the hæmolytic phase. The mean diameter is 10.67 μ instead of the normal 7.2 μ. Notice also, in passing, the number of myelocytes which can be seen. The third part shows cells from the same child taken two and a half years later, showing that, though there was no anæmia at that time, the cells were still large. The next slide shows this graphically in the Price-Jones curve, with which you are probably familiar. This child would appear to have been liable to a recurrence at any time, and the condition contrasts with the congenital and infective groups of which I have spoken. In the latter, once the condition is recovered from it is recovered from entirely, and, with very few exceptions, there is no tendency to recurrence.

There is another type of hæmolytic anæmia which I must mention, though it is comparatively rare—acholuric jaundice. This may give rise to very similar symptoms at an early age. Usually there is a family history, though occasionally a case is seen in which no such history is obtainable. The colour index is usually about normal. When you are counting the red cells you are struck at once by the smallness of their size. The next slide is taken from such a case. Notice again the number of myelocytes present; these are typically found in a number of anæmias due to a variety of causes, when such anæmias occur in the infant. The next slide shows the size of the red cells in the form of a Price-Jones curve. The characteristic feature of acholuric jaundice is the increased fragility of the red cells to hypotonic saline solutions. In the child, it may be difficult to draw blood from a vein, but from the point of view of diagnosis there is no need to estimate the absolute amount of hæmolysis, and if you are going to see a case it is sufficient to take two tubes —one of 0.48 per cent. and one of 0.54 per cent. sodium chloride. The tubes should contain about 3 c.c. of the fluid. If two or three drops of blood are allowed to drop from a finger-prick into each of these solutions, if hæmolysis is observed in the 0.54 tube the diagnosis is certain, while if it is observed in the 0.48 tube the diagnosis is probable. Later, from the point of view of watching the effects of treatment, it is convenient to plot out the entire curve, but from the diagnostic point of view this is not essential. A further point is the characteristic dumb-bell shape of the cells in acholuric jaundice, if you get a chance to examine them as they turn over on their sides in the counting chamber; I have depicted these cells as being smaller in diameter than the normal, but the total volume is slightly larger—they make up in thickness what they lack in diameter.

In the differential diagnosis between hæmolytic and non-hæmolytic anæmias, this examination of the red cells for fragility, the van den Bergh reaction, and the appearance in the film, notably the size and shape of the red cells, are important.

Anæmia may be due to other causes, in conditions not widely differing from those found in adults, but differing in the child's reaction. A form which occurs to one is that associated with hæmorrhage A little hæmorrhage in a child may be a very serious matter, just as later we shall see that a small transfusion in a child may produce an exceedingly good effect. What are the main sources of hæmorrhage in a child? There is trauma. Again, there is the bleeding of the newly-born, the so-called melæna neonatorum. If a child passes a large quantity of blood in the stools and that child is not obviously anæmic, you can conclude it is not the child's own blood that it is passing. A breast-fed child will often suck a

large quantity of blood from the nipple of the mother if that nipple is cracked. Even with that possibility at the back of your mind, if you examine the nipple you may not see a crack. In such a case, put the child to the breast, and after it has had half-a-dozen good sucks put your finger into its mouth; you may find blood on your finger, or at the end of the feed you may see a little ring of blood round the infant's mouth. With marked melæna neonatorum the child is gravely anæmic.

Another cause of bleeding into the intestinal tract is ulcer. Duodenal ulcer is uncommon in children. If it does not occur in the first few weeks of life it is not likely to take place in childhood. In older children there are conditions such as purpura. Here, again, you may find a fairly anæmic child; the bleeding tends to be from the gums or into the intestines, or there is nose-bleeding or bleeding from the kidney. These hæmorrhages often make patients profoundly anæmic. I have seen the hæmoglobin as low as 25 per cent. in a child of ten. The other bleeding condition, hæmophilia, I will mention only to dismiss it. The amount of blood likely to be lost in this way is not sufficient to account for the anæmia unless the cause is so obvious that you do not think of the anæmia but of the bleeding; the presenting symptom will be the bleeding, not the anæmia.

There is a type of anæmia which we call chlorotic. I do not like the term as applied to the child, because there is no greenish coloration with it; in fact, there is not even a creamy coloration of the skin in these babies; it is usually a marble-white. There are a variety of causes, probably chiefly related to environment, atmosphere, ventilation, hygiene, with complicating factors, such as diet and prematurity. I think the most anæmic baby of this type I ever saw was one who had been fed at the breast 2½ years, without any other feeding. It was very white. It picked up very rapidly when given the appropriate treatment.

Now I come to a type which examiners at least expect you to know. It is not common in practice, though it is commoner at this period of life than in older people. There has been a great deal of discussion about it, and you will find that eminent writers on diseases of the blood in children disagree with one another. It is the so-called "anæmia gravis" of childhood, sometimes called "aplastic anæmia." The majority of cases diagnosed as aplastic anæmia in adults have got red marrow, and are not examples of true aplastic anæmia. Aplastic anæmia is much more common in late childhood, that is at about 12 or 13 years of age, than at any other period of life, and when such a case comes to post-mortem we find it has definitely white marrow. We know very little about it, and we cannot do much for it; the child becomes progressively anæmic, do what we will. Now and again there is a flicker of the candle, and, when there is, we hesitate over the diagnosis of aplastic anæmia, because we find a few nucleated red cells in the blood. Probably that means there is one tiny bit of functioning red marrow. Often there is a preceding history of anæmia which has temporarily responded to treatment, and this is a circumstance which should make one pause before giving a prognosis in other types of anæmia. It is claimed by some that this is the counterpart of pernicious anæmia in the adult. It is obvious from what I have said that I do not agree with this. It is an anæmia due to depression of the marrow; everything is depressed: hæmoglobin, red cells, white cells, platelets, all are low. And because of the low platelet count there is an extreme tendency to purpura. It is a very difficult condition to diagnose. I will draw you a typical picture. It is that of a child, aged 12, who has been gradually getting a little weaker, often with an occasional rise of temperature, and later with such a temperature every night, the child still becoming more anæmic. Then it is noticed that there is some œdema round the ankles, and that there are spots of purpura on the legs. If the child is examined at this stage the spleen, not very hard, is palpable and tender, and even a rub may be heard over it. The heart is enlarged, and is beating rather feebly; there is a systolic murmur at the apex. With the child's chin drawn forward or the head thrown well back there is heard at the base a rough systolic murmur, or even a rough diastolic murmur. With that picture, if I had not been speaking of anæmia, no one would have had any difficulty in suggesting a diagnosis of malignant endocarditis. Yet these children are found, post-mortem, to have no change in the endocardium. It may represent a variety of conditions, and with the temperature one is apt to think of infection, yet never can one find any definite infection.

Whenever you find a depressed white cell count in a child you will usually find myelocytes present, and your difficulty may be to differentiate between true leukæmia in the child and one of these anæmias with a depressed count.

The types of leukæmia one meets with in the child correspond, roughly, with adult types, except that in each variety the course is more rapid. Even in the chronic myelogenous leukæmia the course is seldom more than six months, usually three. In that type it is usual to have a high white count, as in the adult. It may reach even 500,000, and nearly always is over 200,000 per c.mm.; the blood platelets are scarce.

There is another type, true lymphatic leukæmia, which is more common in the child, and in this frequently the white count is low, *i.e.*, not more than 7,000 or 8,000. The criterion I want to insist upon is the proportion of apparent lymphocytes which are present, usually about 90 per cent. Anything above 75 per cent. of lymphocytes ought to make you think it probable that it is a case of leukæmia. But when you examine these cells carefully you find that many of them are not lymphocytes, but lymphoblasts.

The next slide is taken from a case of leukæmia, and I want you to notice the cells, which are larger than ordinary lymphocytes, though they might pass for lymphocytes. They are not even lymphoblasts, but myeloblasts. The case was one of acute myelogenous leukæmia.

The next slide shows the same type of cells, myeloblasts, in a condition which is not leukæmia in a child. I want you to notice that, besides the nucleated red cells, polymorphonuclears are fairly common and well-formed, and that should differentiate it from a leukæmia. This type of anæmia in which you get a pseudo-leukæmia is often known by the name of von Jaksch. It is a disputed point whether there is such an entity.

I have been trying to direct you attention to the proportion of myelocytes present in certain anæmias; I showed you a typical case of pernicious anæmia in which they were present; the other was a typical case of acholuric jaundice, and the last slide was taken from the same case. This case was confidently diagnosed as von Jaksch's anæmia when the child was first seen at nine months old. The child is one with whom many of you may be familiar, as he has been a regular attendant at this hospital during the last eight years. It was a typical case of acholuric jaundice, showing, in the earlier stages, the child's reaction in the form of leucocytosis, and not only so, but with a differential count showing an increase in the number of myelocytes. I would suggest that all the cases of so-called von Jaksch's anæmia are really cases of other forms of anæmia, which are examples of types we have already discussed, or of a few others. It is not merely an academic point, it is one of great practical importance, because the treatment varies with the type of the anæmia.

Other types of anæmia, which I have not time to discuss, are those associated with metabolic disorders. I need scarcely remind you of the anæmia associated with myxœdema or cretinism. Another is associated with cyclical vomiting. Then there are those associated with neoplasms (sarcomata in children), with Hodgkin's Disease, with chloroma, and occasionally with glandular fever; nor must I miss those cases with which you are familiar in the wards, whose degree of anæmia is nearly always less than it appears to be, cases of acute rheumatism and nephritis.

There are only two or three minutes left in which to discuss prognosis and treatment. With the exception of that grave condition, aplastic anæmia, the outlook, as a whole, is good. The treatment in the hæmolytic anæmia depends on the stage at which you first see the child. If the patient is rapidly going downhill there is no time for liver feeding, in which improvement is hoped for at the end of ten days; such a child will not then be with you. If the case is acute, transfusion is the method of choice, and I would recommend giving the transfusion into the ante-cubital vein, not into the sagittal sinus. I have seen three deaths follow when the sagittal sinus was used, and in all of them at post-mortem blood was drawn on lumbar puncture, blood having passed into the subarachnoid space. If you are giving a transfusion into the ante-cubital vein, do it slowly, so as not to cause dilatation of the heart. In the child especially, great care must be taken with the blood grouping, as children are particularly prone to shock if blood of the wrong group be given. It usually takes a long time to be certain of the group; whereas in the adult ten minutes will usually suffice, in a child it may take 45 minutes before agglutination takes place. In hæmolytic anæmias, liver extract appears to be of great value, even when the condition is not pernicious anæmia. In acholuric jaundice, splenectomy is the treatment of choice, but in very young children it may be advisable to give liver extract in the earlier stages, deferring the operation until the child is older. It should be noted that when liver is given to children it is necessary to give amounts which are large, in some cases almost adult doses.

In chlorotic anæmias iron is essential, and again large doses are necessary. It is best given in the form of iron ammonium citrate. Five grains a day should be given at the commencement, and in the course of a few days this should be raised to as much as 15 grains.

From what was said at the beginning of this lecture it will be obvious that in nearly all anæmias in the child iron must be given in addition to any other treatment. Administration of iron, even to a normal breast-fed baby, definitely raises the value of the hæmoglobin. The last slide which I shall show you contrasts the average values of the hæmoglobin in breast-fed children with the values obtained by the daily administration of iron.

In the remaining types of anæmia we have discussed, the treatment is essentially that of the underlying condition, but, whatever the type, if the degree of anæmia is severe a transfusion should be given in the first instance.

Hospital Comparisons

MY last article compared the bare outlines of the curriculum in America with that at home, but made few special references. It is the more special points with which I am now concerned.

The teaching of anatomy is interesting; far less time is devoted to it than in England, and indeed the whole outlook upon it is different. Dissecting lasts one academic year, namely, nine months, and two students are allotted a body on which they do all their dissecting. It means that they have more material to work on and more space, but the disadvantages are obvious; a bad subject sticks to one all the time, and a great deal of care is needed to keep a "part" in good condition for so long. Also with nine months' continuous dissecting it usually means that the first three months are spent on the first part and the rest of the dissection is crammed into the remaining time. Personally, I cannot see how anatomy can be learnt even moderately well in such a short time. Moreover, in the department here there is an extensive anthropological work going on which involves the preservation of the skeleton intact. The bones are beautifully prepared, but it is difficult to preserve a skeleton intact and learn anatomy. True, the skull-cap is removed, but the inner mysteries of the nasal fossæ are only to be acquired from a bottle specimen or a plaster cast. The brain also is studied from dissecting-room material, and again one knows full well that this is only rarely satisfactory. Bodies for dissection are apparently obtained far more easily than in England. For instance, this year there are some 40 in the dissecting-room and about 50 more are being used for anthropological research *alone*. None are needed for operative surgery, as this is done on animals.

As the skeletons of all the subjects are carefully preserved after being elaborately investigated, it is clear that burial cannot take place; this is in fact so; burial as occurs in England is not performed.

Anatomy never crops up again as an important part of surgical or medical education. As we all know, in England it is expected that a would-be surgeon spends special time acquiring a practical knowledge of anatomy by teaching in the dissecting-room. Here it is not usual for a man who has finished his resident appointments to go back to the anatomy department, but he is advised to work in the department of surgical pathology. It is felt that more good will accrue from this. A tendency in the same direction is, of course, seen in England to-day; the increasing store placed on physiological and pathological processes as opposed to purely anatomical ones is everywhere apparent. At Duke, a new university in North Carolina, I understand so much time has been taken from anatomy for chemistry and physiology that only three months is allowed for it. However, one cannot help feeling that the pendulum has swung too far when there is such a complete disregard for the importance of anatomy except as a pure subject. The only instance I have encountered of further time spent on it is in the case of the Internes in the Ear, Nose and Throat Department, who are compelled to dissect the appropriate regions during their term of office.

With clinical work the big differences in conditions appear. I mentioned in my last article that the students play little or no part in the working of the hospital machine, and this lack of participation in practical work strikes one more forcibly than anything else. We at Guy's are extremely proud of the early responsibilities given one while working in the wards; we all recognise that perhaps nowhere else in England is so much practical experience obtainable before qualification. Over here one realises to the full how invaluable are these opportunities. With the single exceptions of the Out-patient Clinics and, of course, midwifery, there is no parallel to dresserships and clerkships as we know them.

The two years of clinical work are divided into a junior year and a senior year. The junior year is spent mainly in Out-patients, although just lately some time has been allowed in the wards. The senior year is spent in the wards. In Out-patients, I think the system is admirable. A student sees a case, writes it up fully, examines it and forms his opinion; he is in the exact position of a general practitioner, and when he is ready he calls one of the men in charge to see the case with him, and they go over it together and discuss all its aspects and "work up," exactly as consultant and general practitioner. The students also do some minor operations in Out-patients.

In the senior year spent in the wards the students are allotted patients much as at home; they write up the history of the case, but do not write up the physical examination, which is the interne's duty. They also carry out many of the laboratory investigations on the case. This is admirable up to a point, but I feel the amount of laboratory work the students have to do prevents them from giving as much time as they should to the actual clinical work. Laboratory investigations are much more profuse than we expect, and the students do many things which are not expected of students

at home. It is, of course, an excellent thing to acquire the ability to carry out almost any special investigation, but not if it is at the expense of clinical work. I have had several keen students tell me that they sometimes find it difficult to make proper physical examinations because of the laboratory investigations they had to do. Part of the fault must lie with the students; they are certainly slower in doing the laboratory work as they are beginners, and they could doubtless make an opportunity to get to see their patients at some time or other, but all the same, I cannot help feeling that rather too much stress is laid on these accessory methods of investigation at this time. I, of course, stand open to contradiction on this point.

Ward rounds are made by the staff, just as at home, but clinical lectures are distinctly different. A set talk on a subject is not usually given, but ward cases are brought in and discussed. Moreover, these cases are not directly lectured upon, but two or three students are called down and "ragged" upon them rather as may occur in a ward round.

On the surgical side also students write up the history, but the report of the physical examination is left to the interne. At operation on their own cases they scrub up and act as third or fourth assistant, which obviously does not involve much. The senior resident is first assistant, the assistant resident is second assistant, the interne (H.S.) is third assistant, and the student to the case then comes as fourth assistant. Instruments are managed by the theatre sister. Actually, therefore, an H.S. is not getting the opportunity of assisting at operations that a dresser does at Guy's. Dressings after operation are either done by the resident, the assistant resident or the interne. The interne is chiefly responsible for them, and he may allow a student to do dressings on his own cases provided he has shown himself to be keen and reliable. An indifferent student will not be allowed to touch a dressing, but a good man may do quite a lot. Very often the senior students act for internes who are off duty for some reason, and this also gives the keen man very useful additional experience. The contrast with our system of dresserships is, however, very marked. The students do not spend definite periods doing appointments in separate departments of surgery; so far as they are concerned, all the surgical beds are lumped together and they are given cases in rotation; thus they may get a neurological case, or one on general surgery or on orthopædics. It is to be remembered that only two academic years (namely, 18 months' actual work) are allotted for the clinical period.

After graduating, it is essential for a man to spend some time doing interneships. I think that it is much more necessary in America than it is in England. Some schools apparently give a slightly more practical education to their students, but in the best schools the training is very academic and is not meant to be complete without interneships. This is very definitely recognised by several States, who will not allow a student to take his State examination (for licence to practise) until he has spent a year as interne.

A surgical interne is appointed for one year, a medical interneship lasts for 18 months. Very often both of these appointments are taken. At Barnes Hospital there is in force a system called "Rotating Interneship," which, although not present all over the States, is followed by most hospitals. During his year of office, a surgical interne serves seven weeks in each of seven departments; thus in the year he has obtained seven weeks' experience of general surgery, neuro-surgery, genito-urinary surgery, etc. This short tenure of office must seem strange to us at home when we consider the difficulties of getting acquainted with a new chief, new cases, new nursing staff and new students every so often. The internes are responsible for the treatment of the case, and very particularly for the history, examination and general work-up. The students may only write a history, the rest is written up by the interne, who also carries out all the investigations on the case. While the students are there, as I have mentioned, they do much of the laboratory work as requested, but when the students are on vacation the whole of the work falls on the interne. One cannot help feeling that from the point of view of keeping more useful and accurate case reports, this system has much to commend it.

At operations they clean up the operation area and act as third or fourth assistant; they may get one or two operations to do during their year of office.

After finishing their appointment, three of the internes are appointed assistant residents. There are six assistant residents in all, and they act for two years. Their time is split up into six periods of four months, two assistant residents being attached to general surgery and one to each of four special departments. From the assistant residents one man is appointed full resident, and holds his office for one year; he may be reappointed for a second year. It is preferable for a man to take off one year after doing assistant resident and work in the department of surgical pathology before going on to do resident. I have already mentioned how this is advised instead of time spent in the dissecting-room. The resident

is in almost the same position as a surgical registrar at Guy's, except that he does no teaching and is on whole-time duty. He usually gets plenty of operative experience, and acts as first assistant to his surgeon when he is operating. It is a very valuable appointment, indeed.

The assistant residents on the special departments are very much in the position of the resident in general surgery. Their position is, however, somewhat anomalous. (I rather gather the appointment can be made just as lazy or as active as the man wishes it to be.) Their main duties lie in the operating theatre, where they act as first or second assistant and get occasional operations. It is the assistant resident who is directly responsible to the visiting staff man, and the interne is responsible to the assistant resident for his cases. One can see that the position of the resident houseman is vastly different from that in our own system; responsibilities are shared amongst more people and there are more men concerned with each case; each of them may issue instructions to the one immediately below him. Thus in general surgery there are a resident, an assistant resident and an interne all concerned with care and after-treatment, although ultimately the interne is responsible for the work-up and management of the case.

It will, perhaps, be of interest if I quote the following :—

" The graded system of appointments of the house staff, which is now in vogue in many of the best hospitals in this country, is an American contribution to the methods of medical education. This is, perhaps, America's greatest contribution to the improvement of educational methods in medicine. From Germany we acquired the laboratory methods of instruction, from England we obtained the idea of permitting medical students to go to the bedsides of the patients in the wards and actually to see and observe the conditions of the patients, and from America has come the third great contribution of giving intensive post-graduate training over a period of a few years to a carefully selected group of young men. By the graded system of house staff service a young man is selected after graduation to serve as an interne for one year. From the ranks of the internes are selected a few men each year for the position of assistant resident, at which position each serves for two years, and, finally, from the assistant residents is chosen one man to serve as resident for a period of one or more years. This training is not only invaluable to the selected few who receive it, but it is also valuable to the hospital and to its patients, because it means that at all hours of the day and night they are under the protective and watchful eye of a carefully trained and carefully selected group of intelligent young doctors."

An interne receives free board and lodging, but no salary; an assistant resident receives $360 a year and a resident $1,000, in addition to board and lodging.

On the medical side the system is slightly different. As I have said, the appointment is for 18 months, and it is divided into three periods. The first six months is taken as junior interne and the whole time is spent in laboratory work. No provision is made for clinical work, though there is nothing to prevent a man going into the wards. The second and third periods are spent as senior interne and house physician respectively. The senior interne writes up the case report, carries out necessary laboratory investigations, and conducts the treatment of the case under the guidance of the H.P. Over these there is a resident medical officer. Besides the visiting staff man or the Professor of Medicine, therefore, there are, perhaps, three men all working on and concerned with the same set of cases. I make no comment.

At any time during this progression of internship, assistant resident, etc., of course a man may side-track into a special department such as pathology or bio-chemistry, much as happens with us. This is a favourable point at which to call attention to the large number of young men who are able to obtain positions in these various departments; it is a thing which strikes one forcibly at once. For instance, one finds six or seven workers in addition to the professors, all keen and actively engaged in routine work and research. I suppose there is much more money behind the schools enabling them to give employment to all these young men, although, of course, the salaries they receive are not large. It impresses one with the amount of good work they should be able to turn out from each department.

The appointments to the staff are so different that I must try to give an idea of the system. Taking the surgical side : the Professor of Surgery (Dr. E. A. Graham) is at the head, and he is in charge of *all surgical cases* in the hospital. Actually there are in addition associate surgeons in charge of each of the specialities such as ear, nose and throat, neuro-surgery, and the surgeon-in-chief naturally leaves their cases entirely to them. All the general surgical beds, however, are under his care, and it is only if he is away from hospital for some reason or other that he hands over cases to an assistant surgeon. If one looks up the list of assistant surgeons one finds it long and formidable. When a man has finished doing his one or two years as resident, and if he intends to stop in the city, he may then be appointed to the staff as

assistant surgeon. This means that he is allowed to take private patients into hospital and enjoys the privileges of working in the department of surgery; he is, however, *not allotted any general ward beds* unless he should be asked to take charge of a ward when the Professor of Surgery is away. If he takes part in the teaching of surgery he receives the title of assistant professor; there are quite a large number of professors and assistant professors in America! One of the assistant surgeons is in charge of the out-patient clinic.

It is thus seen that, although the progress of the American medical student is slow to begin with and continues slow during the first years of qualification, there is a sudden speed-up and a man may be appointed to the staff within a relatively short time of qualifying; certainly much more speedily than is usual in England. Since these younger men are not given any beds and as their private patients are naturally few in number, it follows that their chance of increasing their surgical experience would be very small unless they obtained experience elsewhere. Almost all the assistant surgeons, in fact, are on the staff of one or more other hospitals in the city.

Hospitals are somewhat different from those in England; as most are aware, there are no nursing homes such as we have, but only private hospitals or hospitals which take a fair proportion of private or semi-private patients in addition to free patients. Thus in St. Louis there are several large, very efficient and well-equipped hospitals which only receive private patients; these have what is known as an "open staff." This means that any doctor in the city can have beds in that hospital. It is by no means necessary for a man to be on the staff of a recognised teaching hospital in order to make a living as a consulting surgeon or consulting physician. In fact, it is very often, I am informed, a sacrifice of part of one's practice to give up time to public hospital work and, so far as income is concerned, it is frequently the unattached surgeon or physician who is most successful. Barnes Hospital has a closed staff (that is, only men definitely appointed may take in private patients), and it throws an interesting light on the different state of affairs in America that such a closed staff system provokes great ill-feeling and complaint amongst the practitioners in the city. There are, by the way, some 2,000 medical men in St. Louis; as the population is about 1,000,000, this works out at one doctor per 500 head of population. Even allowing for many patients coming in from the surrounding country, it is difficult to see how they all make a living.

Hospital fees are somewhat higher than in England. The following are the fees at Barnes :—

Suite (2 rooms and bath) ..	$20.00 per day.
Private rooms	$7-$12.00 per day.
Semi-private rooms ..	$4.50-$5.00 per day
Wards	$3.25 per day.

The semi-private rooms contain four or five patients; many of the ward cases are, of course, free patients. These fees are considerably less than are charged at many private hospitals.

The private surgical cases are scheduled on the same operating list as the other cases and the same operating team works on them, thus there are no fees paid to assistants in addition to the surgeon's fee. The anæsthetic fee is only $10; I shall refer to this aspect again in another article.

I will close with two final comparisons which have impressed me. The first is concerned with the conduct of post-mortems.

For some reason or other there exists (all over America, I am assured) a constant strife between the undertakers and the hospitals. Why it is I do not know, but the undertakers are opposed to post-mortems and make every possible effort to prevent them; perhaps it is concerned with the certain necessary delay. Very often when the relatives have given consent for an autopsy they will actually withdraw that consent after interviewing the undertakers. In any case, it results in the fact that a post-mortem is usually performed within as short a time as possible after death. Now it may sound ridiculous to us, but if a patient dies at 3 a.m. a pathologist is got out of bed to do the post-mortem then. In fact, there is often a resident pathologist who is on duty after 5 p.m. for this purpose. I was called to see a post-mortem on a case one evening at 8 o'clock. Somewhat ironically I asked what happened if a patient died at midnight instead of 8 p.m. To my surprise and consternation I was solemnly informed that those concerned would still have assembled together!

Now from the point of view of the actual post-mortem, it is an advantage to make the examination as soon as possible; but two grave drawbacks result or are inevitable from the force of circumstances.

First, there are fewer post-mortems, only slightly fewer, it is true, but there are more *partial* post-mortems. Every grade of permission has to be obtained from the relatives; for instance, the brain is certainly never examined unless express permission has been given. Very often it occurs that permission can only be obtained for a local examination of the diseased area.

Secondly, there is the big and important question of post-mortem room teaching and observing. When there is nothing at all corresponding to the hour of 1.30 p.m. at Guy's, one realises what a

very big gap there is to be filled. By regular attendance in the post-morten room and seeing every possible case in addition to those with which one has been directly connected an enormous amount of invaluable knowledge can be built up. When there are no set times for autopsies, students miss an opportunity which I am convinced is one of the most valuable in hospital training. If a patient dies at an unusual hour, various interested people are informed and attend the autopsy; the student to the case is usually informed. How often the students attend I cannot say for certain, but I do know that I have witnessed many extremely instructive post-mortems at which no unqualified man has been present and no one apart from those directly connected with the case. Clearly everything is against the students seeing more than very few post-mortems; they may not even see all the post-mortems on their own cases, and are almost certain to miss autopsies on cases which they have seen but have not actually clerked to.

The only solution to the problem seems to be some understanding with the undertakers whereby it would be possible to do as we do and defer all autopsies to a definite hour each day.

There are no post-mortem clerks, by the way, and the pathologist dictates his report to a dictaphone after finishing the autopsy. I think this is a great improvement. One sees secretaries and typists all over the hospital in every department, and it certainly makes much of the work easier and pleasanter to have them.

The final comparison in some part mitigates the drawbacks of the post-mortem difficulty, but not in so far as the students are concerned; it is the habit of staff conferences.

On Wednesday at noon there is a medical pathological conference, at which interesting post-mortem material is presented; the interne to the case first reads the history, clinical findings and course of illness, and the pathologist then shows the gross and microscopic post-mortem findings. The cases are well presented and the pathology is exceedingly well done. Open discussion then follows. Usually two or three cases are presented in the hour. This conference is attended by the medical staff and internes, but a fair number of the surgical side also attend. This particular conference is shortly going to be improved by having an X-ray meeting every third time, when skiagrams of interest are to be exhibited and discussed. This seems to me to be a very valuable addition.

On Thursday at 4.30 we have a somewhat more informal surgical pathological conference, which is mainly intended for surgical internes, but is attended by the junior staff and many of the surgeons; Dr. Graham presides. Most times pathological material is shown which has been obtained either post-mortem or at operation; a history precedes the exhibit and microscopic investigation is always included. Again general discussion follows. At other times important papers in the literature are discussed, or again a visiting medical man will give a talk on some subject he is specially interested in or on research he has conducted, or one of the men working in the department itself will describe investigations he has been carrying out and the results he has obtained.

Finally, on Friday morning at 9 a.m. there is a combined staff meeting, which is very well attended by both medical and surgical sides and the special departments. Usually four or five cases of interest are shown and discussed by one or two people before a general discussion is opened on each one.

If these three conferences are regularly attended one manages to see almost everything of especial value, or even of ordinary value, which occurs in the hospital. One has only to think of all the material that there is at a hospital and then to consider how few people may actually see it to realise what a waste of opportunity there can be. If one takes the question of X-rays; an interesting film may be seen by some half-dozen people only. If that same interesting film is shown to a gathering of keen men and is discussed and a few words said about things in it that one should look for, then many more people will benefit. I suppose the newly-qualified men and the younger members of the staff get most out of these conferences here, and it is, in fact, for them that they are mainly intended, but the presence of the senior men is chiefly responsible for their success.

R. C. B.

Guy's Hospital Gazette

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Correspondence

"The Future of Surgery"

To the Editor of the GAZETTE

SIR,—I have always felt the greatest admiration for the courage with which Sir Arbuthnot Lane persisted in his view that a rib should be resected in the treatment of empyema in spite of the strenuous opposition of the physicians, who believed that fatal osteomyelitis would certainly follow. But this epoch-making event occurred nearly 50 years ago, and I am at a loss to understand why Mr. Tanner should complain in your issue of January 10th that I did not refer to this or any of the other advances in surgery which we owe to Sir Arbuthnot. My lecture was on "The Future of Surgery"—*not* "The Surgery of the Last Half-Century."

Yours, etc.,
ARTHUR F. HURST.

Notes on Pathological Specimen

To the Editor of the GAZETTE

SIR,—In the museum attached to the Pathology Department at Guy's is a specimen of a kidney showing numerous recent infarctions occupying most of the outer two-thirds of the cortex. This came, I believe, from an elderly diabetic who died from a terminal septic infection, and dates from 1924-25. If any of your readers should remember the case, I should be very glad to receive some notes on it.

Yours, etc.,
HAROLD E. HARDING.

Pathology Department,
The University of Sheffield.

Reviews

Dental Mechanics: A Manual for Students and Junior Practitioners. By E. LLOYD-WILLIAMS, T.D., M.R.C.S., L.D.S. Eng., L.R.C.P. Lond., L.S.A., Lieut.-Col. R.A.M.C. (T.A.), retired, late Senior Dental Surgeon, Westminster Hospital, and Senior Dental Surgeon and Lecturer on Dental Mechanics, Royal Dental Hospital of London. Published by Messrs. John Bale, Sons, & Danielsson, Ltd. *Price* 5*s*.

THE author puts before students and the profession in a concise, reliable and scientific form the results of half-a-century's experience, during a part of which time he was a lecturer on dental mechanics and dental surgeon at the Royal Dental Hospital of London.

Whilst it would be invidious to combat his conclusions, attention may be drawn here and there to differences of opinion. For instance, it is stated in the Preface, "I am convinced that in a great many instances, if the four first premolars were extracted more often—*and at the right time*—the necessity for mechanical apparatus would assume but small proportions." I would agree if the word "molars" were substituted for "premolars" and after "time" the following words were inserted: "That is, as soon as the second molars are erupted, usually at 13 years," affirming also that the individual would be spared considerable interstitial decay and freedom from impaction of the mandibular third molars.

The book is crammed full of information, and should be in the hands of the student from the first day of his pupillage, in order that he may learn from the beginning attention to detail, neat and accurate methods, and æsthetic considerations. It is difficult to unlearn bad habits.

Having discussed fully the different materials used for taking impressions of the mouth, the author favours in nearly every case plaster of Paris, whilst the majority of dentists are still satisfied with "composition" and special trays, excepting for edentulous mandibles, where undoubtedly plaster is best. I have kept duplicates of all models, imbedded in plaster of Paris slab articulations with windows. The use of "composition" for this purpose seems unnecessarily expensive.

It becomes a question whether it is any longer advisable to teach students how to swage dental plates. The process involves a considerable amount of practice and skill, especially in the making of lowers with strengtheners. Cast plates give closer adaptation, and the technique is much more easily acquired, and even if the plates are weaker—a doubtful point—they can be made slightly thicker. The cost of the apparatus is soon paid for in the saving of time. It is recommended that in supplying a lower denture when only two or three carious incisors are present, that they should be carefully treated and retained. Excellent advice, but is it possible to retain them for any length of time?

It is stated that the mouth blow-pipe is almost entirely superseded by Fletcher's Bellows, and that wire bands—too often used to save trouble—

are harmful, cutting into the natural teeth and causing decay; at the same time, a loop of thin wire is most helpful in bulbous shallow teeth.

The author has made a close study of vulcanising, and his numerous and exhaustive experiments are of great value, hence his results may be accepted as thoroughly reliable, if not final. The fact that in vulcanite repairs "there is no real union between the old and new material, only a mechanical join," will come as a surprise to many dentists.

The three-part flask is ideal, but is it generally known? The retention of full upper dentures largely depends upon the plates being carried over the maxillary tuberosities, and in lowers well down on the distal lingual surfaces, called by mechanics "the heel." It is emphatically stated that strengtheners in vulcanite dentures should consist solely of perforated gold plates, embedded in the vulcanite and carried over the alveolar ridges. It is maintained that gold plates on the surface of dentures are useless, and that wires inserted in lowers should be termed "weakeners." However, in case of fracture they hold together the fragments.

Summaries of some of the chapters have been given, and others might advantageously be similarly dealt with.

Celluloid, Walkerite, hecolite and continuous gum work are scarcely touched upon, and the making of obturators could best be taught at the chairside of the patient at the hospital.

The uses of the mouth washes prescribed are not given, and tooth powders are outside the scope of mechanics. A useful linear measurement in inches and corresponding millimetres will be found on the outside of the back cover.

Colonel Lloyd-Williams is a man of ability, enthusiasm, self-reliance and versatility.

In conclusion, it may be said that it has been a pleasure to read the book, which is free from professional jargon and easy to follow.

W. A. M.

Taylor's Practice of Medicine. Edited by E. P. POULTON, M.A., M.D. Oxon., F.R.C.P. Lond. 14th Edition. Published by Messrs. J. & A. Churchill. *Price* 25*s.*

PREVIOUS editions of this volume have built up a reputation for "Taylor's Medicine" which makes it difficult for it to be increased, yet this the 14th edition is sure to do. The whole text has been thoroughly revised and brought up to date to an extent that is almost surprising. In addition, a new section has been added on Mental Diseases, by Dr. R. D. Gillespie, most concise yet altogether valuable in its composition; the section on diseases of the skin, by Dr. H. W. Barber, likewise excellently written from the viewpoint of the student and general practitioner, has been lengthened. In spite of all the new matter, the book is only 26 pages larger than in the previous edition as a result of judicious exclusion of unwanted out-of-date matter. The section on nervous diseases, by Dr. C. P. Symonds, is most complete without trespassing beyond the needs of the man engaged in general medicine.

The type is clear and easily read, and the binding has been improved, rendering the whole most serviceable indeed. In reading through the book only one error was noticed; on page 598, line 9, occurs, "10 c.c. per minim," instead of "10 c.c. per minute." The use of numerous illustrations, especially radiograms, is certainly to be advocated, and the publishers have been most successful in their reproduction.

We have no reservations to make, when we whole-heartedly recommend the book to all engaged in the study or practice of medicine. Dr. Poulton is to be congratulated on the compilation of the volume.

Histology for Medical Students. By H. HARTRIDGE, M.A., M.D., F.R.S., and F. HAYNES, M.A. Published by Oxford University Press. Pp. 416. 500 illustrations in colour. *Price* 15*s.*

THIS is a new text-book of histology arranged in a somewhat different style from its predecessors. Opposite each page of text lies a page of illustrations, all in colour, and mostly in small plates about an inch and a half square. A view under the low power is given, and the details are brought out under a higher magnification, but the authors avoid any magnification that the student normally cannot use. Throughout the book they have kept uppermost the point of view of the average student, wisely avoiding microphotographs, which only too often are muzzy, and give neither a clear impression of the tissue nor any details of its structure; they have remained steadfast to hæmatoxylin and eosin, and most of their material is taken from man.

It is the text, however, that will appeal most to the student. The descriptions are clear and concise, and yet are as comprehensive as many of the more pretentious books. From an excellent account of the different tissues, we are led on to a description of the various organs, and finally to a chapter of comparison and contrast. From this

it seems easy to differentiate spleen, thymus and lymph gland; the pancreas and the parotid; the different parts of the gut; and how to distinguish the thyroid, breast and prostate, and even the lacrymal gland and the fœtal lung. The pathologist may smile, but it is not so long since we struggled over the differences between a thyroid and the protean manifestations of the mammary gland in the Physiological Department.

In the main, the authors are to be congratulated on their illustrations, but many of the diagrams are too small to give a clear picture, and in organs such as the liver, spleen and testicle a large field under a fairly high power is much more suitable for bringing out detail and general arrangement. One plate an inch and a half square may show a prostate alveolus clearly, or the muscle fibres clearly, but it can give no idea of the relative proportion between muscle and alveoli and yet keep both recognisable.

However, the text makes many amends. There is an excellent description of bone formation and of the sense organs. The section on the nervous system is adequate, and the individual organs are clearly described. There are some useful appendices on staining methods. The general make-up of the book is good, though it would be improved by more distinctive headings to each section.

With these qualifications, the book is a good one for the average student who does not want to be overburdened with detail.

Recent Advances in Chemotherapy. By G. M. FINDLAY, M.D., D.Sc. 1930. Published by Messrs. J. & A. Churchill. 532 pp. *Price* 15*s*.

THE steady universal progress in the study of chemotherapeutic measures during the last decade has not failed to attract the interest of most medical readers. To follow closely the rapid developments which have recently taken place in this field involves a wide survey of medical and chemical literature.

To all, but especially to those who have an active interest in tropical medicine and in syphilis, this volume by Dr. Findlay provides an excellent summary of the progress which has been made in the chemotherapeutic attack against disease.

The account of the early history of chemotherapy in various infections, the gradual unfolding of the discovery and improvements of chemotherapeutic agents and of their mode of anti-parasiticidal action in animals and in man, culminating in the strikingly favourable results that have been obtained in recent years in the treatment of hookworm infections in trypanosomiasis and in kala-azar, provides a most absorbing and fascinating study, during which the reader is transported from "China to Peru." Whole territories that have defied both sword and pen are succumbing to chemotherapy.

Among the many valuable sections in this volume those on the therapeutic use, action and results of the pentavalent antimony compounds in the treatment of kala-azar, on the nature of the interaction between chemotherapeutic agents and trypanosomes, and on the pharmacology and toxicity of the organic arsenical compounds in trypanosomiasis and in syphilis are all especially noteworthy.

A detailed review is presented of the theories of the mode of activation of anti-parasiticidal drugs, which almost without exception are inactive in vitro; it is evident from a consideration of the part taken by tissue extracts and by glutathione in the activation of arsenical compounds and in their destructive effects on trypanosomes and spirochætes that there is a general lack of agreement as to the mechanism by which these effects are produced.

There are also excellent summaries of the recent knowledge on plasmoquin in malaria, on chaulmoogra and hydnocarpus oils in leprosy, and on Bayer 205 and Fourneau 309 in trypanosomiasis. The value of carbon tetrachloride and ascaridole in ankylostomiasis and the recently revealed importance of the relation of calcium deficiency to the toxicity of the former receive due attention.

The author is to be congratulated on this volume, which is a worthy member of this excellent series, and in particular on the wealth of valuable references.

The work is remarkably free from misprints, but future editions will be improved by a more comprehensive index.

Sport

Rugby

Guy's v. Old Merchant Taylors

THE Hospital opened their second half of the season with a match at Teddington against the Old Merchant Taylors, and were defeated after a hard struggle by 2 placed goals and a try (13 points) to a dropped goal and a try (7 points).

Owing to the absence of Windsor Lewis, who was taking part in the Welsh trials, Guy's fielded an experimental three-quarter line, which was unable to cope with the clever combination of the Old Boys' back division.

Guy's started off very promisingly, and as a result of some good work by the forwards in the loose, penned the home side in their own 25. A score appeared inevitable, but eventually the Old Boys worked their way back to mid-field.

From a set scrummage Spragge was given possession on the blind side, and made a good run before cutting in towards the goal. When faced by the full-back he passed to Tebbutt, who had no difficulty in scoring a try near the posts, which he converted.

The Old Boys continued to press, and in a short time they went further ahead. As the result of Lewis misfielding, Bywaters secured and ran in for another try near the posts, which Tebbutt again converted.

Near the interval, Guy's reduced the deficit as a result of a brilliant effort by Giesen. Johnson raced down the wing and, after evading the tackle of Spragge, he passed inside to Giesen, who deceived several opponents in a splendid run before registering a try too far out for Hogbin to convert.

Very soon after the interval Bywater made a magnificent run for the Old Boys, in which he deceived the whole of the Hospital defence, to hand on to H. D. Heck, who crossed for an unconverted try.

After Guy's had been kept on the defensive, Giesen made a great break away and, running strongly with a clear field before him, a score appeared certain, but unfortunately he dropped the ball when only a yard from the line. From the scrummage that followed, Guy's kicked quickly, and the ball was sent to Thomas, who dropped a fine goal.

No further scoring took place, and the Old Boys retired worthy winners, as stated.

Team.—W. Lewis; G. A. Burrows, D. E. Ashdown, J. E. Giesen, A. G. Johnson; I. K. Thomas, R. J. Eustace; J. S. Batchelor, J. P. O'Shea, R. G. Knight, L. B. Hilton, T. Morgan, J. R. F. Popplewell, G. F. Lashmore, R. A. P. Hogbin.

Guy's v. Northampton

THE return fixture with Northampton was played at Honor Oak Park on Saturday, January 17th, and resulted in a win for the visitors by 2 placed goals (10 points) to 2 tries (6 points).

From the Hospital's point of view it was a disappointing result, as after doing the attacking for the major part of the game they obtained a lead of 6 points, which should have been retained. It was unfortunate that Thomas, owing to an attack of influenza, was unable to take the field at the last moment, as it necessitated a re-shuffling of the back division, which was changed on two or three occasions throughout the game.

Although Guy's, chiefly through the ingenuity of W. H. Lewis and Giesen, had several opportunities of adding to their score, Northampton are to be congratulated upon their fine rally during the second half, when they scored on the only two occasions when chances came their way, and, in spite of the fact that they were without their left wing three-quarter, who was injured and left the field mid-way through the first half.

Northampton kicked off against the breeze, and at once initiated a movement in which Treen and Bailey forced their way to our 25, but W. Lewis intercepted and made a good run to the visitors' territory, where he cross-kicked over the line and the visitors touched down.

Following a good clearance by Wailer, a round of passing between W. H. Lewis, Wailer and Ashdown nearly let the latter in, but Vaughan made a fine tackle and sent the Hospital back.

Northampton secured a mark and eventually pressed on the Hospital's line, but, following a scrum, Guy's were awarded a penalty, which W. H. Lewis followed up and caught Slow in possession. A scrum in front of the visitors' posts nearly led to a score when Morgan, following up a short punt, touched down just outside the dead-ball line. Guy's continued to press, and Giesen tried a drop at goal, and immediately afterwards two fine rounds of passing between the Hospital backs led nowhere through the inability of the wings to accept the final passes.

The second half was more exciting, and after Millward had unsuccessfully attempted to get through on the blind side, Lashmore intercepted and kicked ahead, but over-ran ball with the line at his mercy. A minute or two later, a breakaway by Giesen enabled W. H. Lewis to pick up in the loose and, after baffling three opponents, scored a good try between the posts, which Hogbin failed to convert, the kick being charged down.

W. Lewis had another chance to get through on the wing, but hesitated and lost a good opportunity. Good work by Giesen and Burrows was followed by a splendid effort by Wailer. Fielding an awkward long punt by the visitors, Wailer wormed his way through the defence and, when well inside their 25, passed to Popplewell, who flung himself over the line for an unconverted try.

Stung by this reverse, Northampton played like an inspired side and very soon reduced the deficit. After Forge had made a good attempt to drop a goal, the visiting forwards carried out a combined raid and eventually found touch in the corner. From the line-out Forge hurled himself over the line and Treen kicked a magnificent goal from the touch-line.

Wailer saved a dashing raid by the Northampton forwards and W. H. Lewis created a great opening for Ashdown. The latter made a splendid run, but was overhauled when in the act of scoring. Guy's kept up the pressure in Northampton's 25, and a round of passing looked certain to lead to a score when Slow intercepted in his own 25 and, running right through the Guy's defence, scored a glorious individual try between the posts, which Treen converted.

In spite of desperate efforts in the closing stages, Guy's could not penetrate a resolute defence, in which Coley, Forge, Treen and Matthews were prominent.

Team.—W. Lewis; D. E. Ashdown, L. Wailer, J. E. Giesen, G. A. Burrows; Windsor Lewis, R. J. Eustace; J. S. Batchelor, J. P. O'Shea, J. Kunovsky, R. J. Knight, J. R. F. Popplewell, T. Morgan, G. F. Lashmore, R. A. P. Hogbin.

Hospital Information, etc.

Pass List

SOCIETY OF APOTHECARIES, LONDON.

January, 1931.

Anatomy.

A. R. O. Denton J. W. Piper

Physiology.

A. R. O. Denton H. N. Levitt

J. W. Piper

Change of Address

G. G. T. Tregarthen, L.D.S., R.C.S. (Eng.), 359, Brixton Road, S.W. 9.

Papers by Guy's Men

M. Campbell. Heart failure and its treatment. *Pract.*, 1931, cxxvi, 21.

S. W. Charles. Presidential address. *Brit. Dent. J.*, 1931, lii, 14.

A. F. Hurst. Teeth and the stomach. *Dent. Record*, 1931, li, 29.

—— Chronic indigestion. *Pract.*, 1931, cxxvi, 84.

G. Marshall. Chronic bronchitis. *Pract.*, 1931, cxxvi, 59.

R. O. Moon. Functional diseases of the heart. *Pract.*, 1931, cxxvi, 13.

D. N. Nabarro and A. G. Signy. Convalescent serum in prophylaxis of measles. *B.M.J.*, 1931, i, 12.

A. M. Watson. Compound composite odontome. *Brit. Dent. J.*, 1931, lii, 19.

T. I. Bennett. Nephrosis. *Lancet*, 1931, i, 115.

A. Bulleid. Bacteriological studies of apical infection, Part I. *Brit. Dent. J.*, 1931, lii, 65.

A. H. G. Burton. New utensil steriliser for cubicle wards. *Med. Off.*, 1930, xliv, 217.

L. W. Cann and G. J. Hollis. Actinomycotic cerebro-spinal meningitis associated with aural actinomycosis. *Lancet*, 1931, i, 130.

C. H. Fagge. Plea for earlier diagnosis of abdominal emergencies. *B.M.J.*, 1931, i, 50.

T. R. Hill. Vertical nystagmus. *Proc. R.S.M.*, 1931, xxiv, 312.

H. Muir-Smith. Scaling and Gum Treatment. *Brit. Dent. J.*, 1931, lii, 73.

E. A. Peters. Safe method of dealing with ethmoiditis. *B.M.J.*, 1931, i, 56.

M. A. Rushton. Pedunculated cancellous exostatis in mental region. *Brit. Dent. J.*, 1931, lii, 77.

E. C. Warner. Rheumatism in childhood. *Jour. Clin. Research*, 1931, xvii, 1.

C. Worster Drought and T. R. Hill. (1) Schilder's periaxial encephalitis; (2) Double hemiplegia following diphtheria. *Proc. R.S.M.*, 1931, xxiv, 320.

—— Hodgkin's disease. *Proc. R.S.M.*, 1931, xxix, 282.

Marriage

GILBERT—TOULSON—On 19th November, 1930, at Emmanuel Cathedral, Durban, South Africa, Frank W. Gilbert, M.B., B.S., D.T.M. and H., to Margaret E. Toulson, of Durban.

EDS. { P. M. F. B.
P. V. R.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

Volume XLV *7th February* 1931 *Number* 1110

PASSIM

MEDICAL opinion is the best sort of advertisement, chiefly, we suppose, because individual medical practitioners are not in the habit of advertising their opinions. The statement that "3,000 doctors say YES" carries weight with the public only because those 3,000 doctors could not come forward publicly and say "Yes" individually. Thus there has arisen insidiously the idea that any scheme so protected by the cloak of medical respectability must be beyond reproach. Recently, during its brief passage from our desk to the waste-paper basket, our attention was drawn to one among the many circulars, chiefly, we admit, because it assumed the form of a reply-paid postcard; and while engaged in the task of steaming off the halfpenny stamp we saw ourselves invited to subscribe to the statement that, in our opinion as medical practitioners, Sunday should be reserved as a day of rest. We were almost tempted to stop steaming and reply to the effect that, as we had never experienced Sunday as a day of rest, we were not in a position to give an opinion; or that, like Strube's Little Man, we were ardent Sunday Cinema Fans; or to recall the expression on our grandmother's face, blue-black with godly officiousness and righteous wrath as she belaboured, in the odour of hypocritical sanctity, the Sabbatarian joint of beef which we should subsequently attempt to eliminate unhygienically from our systems in the airless atmosphere of the Sunday drawing-room, with the feeble rays of an autumn sun ruthlessly excluded by half-drawn blinds.

But who are we to enter the lists on so controversial a matter, to assist in setting a standard method of Sunday observance, to give our worthless and harmful opinion on a subject which is none of our concern, to number ourselves among that ever-available army of 3,000 doctors who say "yes"? Let us do our inefficient best in ministering to the body, and leave the dictates of the soul to be worked out by each individual, or to be ordered by those whose authority and opinion are more valuable than ours. . . . And, anyhow, why sacrifice that halfpenny stamp?

▭

WE have been requested by the Residents to thank those of our readers who have already so generously helped to defray the expenses of the forthcoming Residents' Play. They sincerely regret their inability to accommodate all applicants for tickets, but will do their best to issue any return tickets there may happen to be to those who sent in their applications before the "Box Office" closed, and were unfortunately unsuccessful in obtaining seats. We hope to publish in our next issue a *critique* of the play written by an unbiassed spectator.

▭

WE print overleaf a short article by the Superintendent dealing with the history of the statue of Thomas Guy, which is being, with considerable difficulty and not a little scientific skill, relieved of that sombre and dark olive green coat which two centuries of London fog and grime has bestowed upon it. Although it has always ranked among the better examples of old London sculpture, the discovery that it is composed of brass—and a brass with an exceptionally high percentage of copper—renders it in many ways unique. It is estimated that the present-day value is about eight times that of the original sum paid, namely, 500 guineas.

WE note with interest the generous bequest of that well-known South African benefactor, the late Sir Otto Beit, of £10,000 to Guy's Hospital, as well as £50,000 to the King Edward's Hospital Fund.

AT a recent meeting of the Residents, Mr. L. K. Robson was elected President of the Residents and Mr. B. Southwell Vice-President.

THE following appointments have been confirmed by the House Committee :—

House-Physicians—
To Dr. Poulton—Mr. L. K. Robson.
To Dr. Ryle—Mr. E. H. Rink.

House-Surgeons—
To Mr. Fagge—Mr. P. V. Reading.
To Mr. Turner—Mr. R. F. Lomax.

Ophthalmic House-Surgeon—
Mr. R. B. Peckham.

Obstetric Residents—
To Mr. Chapple—Mr. J. R. F. Popplewell.

Out-Patient Officers—
Mr. G. J. Hollis.
Mr. O. Ive.
Mr. N. S. Plummer.
Mr. F. H. Stevenson.

Assistant House-Surgeons—
To Mr. Hughes—Mr. R. B. Sutcliffe.
To Mr. Davies-Colley—Mr. G. V. Steward.
To Mr. Bromley—Mr. H. O. Lyne.
To Mr. Slesinger—Mr. J. Chamberlain.
To Mr. Ogilvie—Mr. C. J. C. Siggers.

Throat and Ear House-Surgeons—
To Mr. Layton—Mr. T. B. Pitts.

Genito-Urinary and Orthopædic House-Surgeon—
Mr. J. M. Robertson.

Swabs and Smears from the Throat

A Clinical Lecture delivered at Guy's Hospital, January, 1931, by T. B. Layton, Esq., M.S.

GENTLEMEN,—When the branch in which I have the honour to practise started to evolve out of general medicine, diphtheria was one of the most important diseases with which the throat specialist had to deal. But the telephone and the motor ambulance have taken it out of our hands, and patients are now sent into the fever hospital before the need arises for the laryngologist. Both the practice in diphtheria and its teaching have, very largely, left us. There is, however, one aspect of the disease that remains to us and about which we must teach—you must consider every disease from two points of view. You go to a fever hospital and you see a number of patients suffering from diphtheria. You look upon those patients from the point of view of the pathology and the symptoms of diphtheria. But you have also got to study the disease as the patient walks into your consulting room, complaining of some symptom. From that point of view inflammations of the upper respiratory tract form the most important work of the general practitioner, and he has always to be on the look-out for the case of diphtheria when it comes along. A few years ago a doctor was sick of an inflammation of the throat, and they called to him a specialist, who said, " Take a swab," and they took a swab, and when the report was through they telephoned to him and said, " The swab is negative." And he said, " Take another," and they took another, and again they reported that it was negative. And he said, " Take a third," and they did so, and telephoned him that it was positive ; and he then said, " That case does not belong to me, you must send for the doctor from the fever hospital to look after him." And on a Saturday afternoon large doses of antitoxin were given, but he was dead on the following Wednesday.

I cannot absolutely vouch for the details of this story, but it illustrates everything that is wrong in the treatment of diphtheria and in the taking of swabs. The first thing you need to realise is this : Were it not that the discovery of the Klebs-Loeffler bacillus was an essential precursor to the production of a diphtheria anti-toxin, it is doubtful whether that discovery has been a benefit to mankind. This is because people are using bacteriological examination instead of a clinical one before they decide that the patient is suffering from diphtheria. I wish to put before you to-day two Golden Rules.

THE FIRST GOLDEN RULE

A swab is taken in a case diagnosed as, or suspected of being, diphtheria, in which treatment has already been begun. That treatment consists of two things : to put the patient to bed, and to give

him the appropriate dose of anti-toxin *at the first possible moment*. If you believe that anti-toxin is the right treatment for diphtheria, it is your duty to give that appropriate dose without a moment's delay. There are a few misguided practitioners who honestly do not think that anti-toxin is either the right or a necessary treatment for diphtheria; and if such doctors withhold it from their patients they cannot be sued or otherwise indicted for negligence or for manslaughter. But if you believe it is the right treatment and do not give it, you can be. In a Court of Law no doctor will ever lose a case of negligence because he employed an unorthodox treatment. All advances in medicine and surgery have been made by the unorthodox. Treatments have passed and are passing; the practice of blood-letting has passed away; cutting out the uvula and removing inferior turbinals are operations of the past; removal of rhinological adenoids is, I think, going to follow them. But the treatment of diphtheria by means of anti-toxin is lasting, and it will last until the student from Oxford goes to New Zealand to complete his medical curriculum, or until civilised man exterminates the Klebs-Loeffler bacillus with the same efficiency as he has exterminated the Tasmanian and the Dodo.

I wonder if any of you really realise what the disease of diphtheria must have been before there was such a thing as anti-toxin. There are still living a number of elderly ladies who were young mothers in the '70's and the '80's, and into whose eyes a stark horror still starts when they begin to think of diphtheria in the child. If ever you meet such an elderly lady and start talking to her on that subject you will begin to realise what a terrible disease it was before there was anti-toxin; as you will if you talk to some of the senior members of our profession. Five minutes' talk with Sir Charters Symonds, who was the surgeon in charge of the Throat Department here when anti-toxin first came in, will impress you on that point and give you a better realisation than any amount of reading of text-books or even the reading of such a vivid account as is found in that remarkable book, "The Story of San Michele," by Dr. Axel Munte. It would be good for any of you who have the chance to lead up to some such conversation with people who are now in the evening of life.

I will put up on the board four cases, and discuss the relationship of anti-toxin and swabs to each.

(1) You say to yourself, "This is diphtheria."
(2) "I believe that this is diphtheria."
(3) "I do not THINK this is a case of diphtheria, and YET . . ."
(4) "This is NOT diphtheria."

With regard to the first two, in accordance with our golden rule you have to start the treatment first, and take a swab afterwards. The third group are the puzzling cases.

You say to yourself: Is it a very serious matter supposing I give this patient anti-toxin and it is not diphtheria? Alternately, how serious will the matter be supposing I refrain from giving anti-toxin and, after all, it is a case of diphtheria? Do not allow the small child to come into No. 3. If you cannot put it into No. 4 put it under No. 2. The adult, if you are very careful, you may sometimes put under No. 3, if you feel pretty confident of your negative diagnosis of diphtheria and the general appearance of the patient is good. You must remember that in the adult the administration of anti-toxin is a more serious matter than it is in the child, because the serum sickness in the adult may compel him to lay up for ten days. In all wage-earners, and particularly in the case of a father of a family, that is a serious matter. In the child, the loss of school-time on account of serum sickness is of no particular consequence. Mothers and schoolmasters always think that the next fortnight is the critical one on which the success or otherwise of the child in after life will depend; but do not give way to them in a doubtful case and, under all circumstances, learn to keep category No. 3 as small as possible.

In No. 4 you need not take a swab; it is almost better to train yourself not to do so. It is advisable sometimes. There are people who still look upon swabs as a means of diagnosis; there are those who will be critical of a person if a case turns out to be diphtheria and he has not taken a swab, and it is valuable to check your own observations. If you are going to be of any use as a doctor you must be human, and it is human to err. But if you check your own observations you find out your mistakes, and you will make less mistakes in the future.

Next, we must consider the action to be taken on the receipt of the report. First, when the report is positive. In that case the action is easy, and it should already have been taken if you are sticking to the golden rule. The next thing I want you to remember is this: *Every positive report which comes back from a patient's swab in whom you have not already started treatment, you must look upon as a criticism of your clinical ability.* If you find a large number of them coming back, you must be wondering whether you are doing your duty by your patients. That is the logical deduction from the first golden rule.

Now I pass on to the cases in which negative reports come back. A certain number of them will be under categories (1) and (2). You have

already given anti-toxin; whether you continue to look upon the case as one of diphtheria or not depends upon the clinical condition of the case, not upon the result of the swab, for a negative report is NEVER an absolute one. When you have a negative report under No. 3 it should support your negative diagnosis. Sometimes, however, you are not satisfied with the report on the first swab. Although your clinical diagnosis is that the case is not diphtheria, YET somewhere at the back of your mind or in your solar plexus you have a feeling that it may be diphtheria. You have lost 24 hours, you dare not lose another. This brings me to the second golden rule.

THE SECOND GOLDEN RULE

If you take a second swab you must give anti-toxin.

It is a logical conclusion from the first. You really believe it is diphtheria. You have lost valuable time. You must not lose any more.

If you learn those two things by heart, and act on them during the next 40 years, you will save lives. At Guy's we never lose more than 24 hours, because we have a laboratory close by, because we have a highly efficient service for dealing with patients who come to the surgery, and because there is a staff of bacteriologists who turn up sharp at 9 a.m. to look at growths and to send reports down to the surgery by 10 o'clock in the morning. But when you get away from an institution with laboratory attached, the interval will be longer than 24 hours, perhaps longer than 48 hours, and you will be lucky if you can get a report within 24 to 36 hours. This makes these two rules all the more important.

My definition of the treatment of diphtheria was, you will remember, to put the patient to bed and to give him an appropriate dose of anti-toxin at the earliest possible moment. Up till now we have been discussing the question of the earliest possible moment. What about the appropriate dose? The appropriate dose in the case of diphtheria may range anything from 300 to 30,000 units. It is only the skilled person, constantly seeing the cases and watching them, who can judge what is the right amount, and many of these give a minimum of 8,000 units. When, therefore, you are working by yourself you had better give 8,000 units. Another reason for that is that it is the amount suggested in a leaflet which was circulated from the Ministry of Health eight or nine years ago, at a time when there was an agitation for a more accurate diagnosis of diphtheria, because the Ministry began to discover there were more lives being lost unnecessarily than was right. This dose is a good one to tide over the time until the patient gets to the fever hospital, if it is a severe case, and a sufficient one if it is a mild case. Actually, when you are working in the Out-patient Department of this hospital you very likely will not give serum before you send the patients off. When you are practising outside it will take longer to get them to the fever hospital, and when you practise away from London it will be longer still. Then you will use your own judgment as to giving a preliminary dose. With regard to the Service in London, which used to be under the Metropolitan Asylums Board, but is now the Fever Hospital Service Department of the London County Council, I once checked the time occupied in getting a case to the fever hospital, from the moment I gave the note to the nurse in the Out-patient Department to the time the patient arrived at the fever hospital at Fulham. In that case it was exactly 45 minutes. That shows a very high degree of organisation. You cannot expect to always get it as quick as that, even in London, and it must be longer outside London, where the population is less, the service not so vast, and the distances greater.

When you are sending a case, I advise you most carefully to put down in writing what you have done and what you have not done. Here is the form which is used at Guy's, of which you may be proud :—

GUY'S HOSPITAL

Diphtheria Certificate

*No Swab taken.	*	Negative on ..
Swab taken on . . . report recd.		Positive
	*	Negative on ..
	*	Positive

---

*Anti-toxin has NOT been given.

*. . . . units of anti-toxin given at . . . . .m. on . . .

Name of patient Age.... Sex....

Address .....

I certify that, in my opinion, this patient is suffering from Diphtheria.

Signature.....

* Strike out the phrases which are not applicable.

When a doctor sees a case on admission to the fever hospital, he must confirm the diagnosis or not. Therefore it is of interest to him to know whether or not a swab has been taken. And, if a swab has been taken, what is the report of the bacteriologist? But much more important than that is to know whether anti-toxin has been given or not. You may say, " I'm not a fool, of course I should put down that anti-toxin had been given if it had been, and if I don't mention it, obviously it has not been given." That is all right for you, but the medical officer at the other end does not know it is you who

is sending the report. And some medical men are fools, for they give anti-toxin and forget to mention it or to make a note of it. Negative notes on these things are as important as the positive ones.

But there is one type of case in which you should always give anti-toxin before you send the patient off, and that is the patient with laryngeal diphtheria. You should never risk taking a swab under category No. 3 from a case that you think may be laryngeal diphtheria. The description of the croupy cough in laryngeal diphtheria is one of the vivid things in medical literature. You cannot describe a croupy cough in ordinary words. I am not a believer in similes as descriptions of clinical signs, but I know of no description of the croupy cough other than that of Bretonneau, who said it was like "the bark of a young dog heard at a distance." If you bear this in mind, directly you have heard a croupy cough you will realise how absolutely true the description is. Whether you are in the Out-patient Department, or at the pictures, or in church, and you hear a child give that cough, pull him out and give him a dose of anti-toxin. It was particularly in laryngeal diphtherias that the institution of anti-toxin made such a stupendous difference in the '90's. The mortality from tracheotomy was nearly 100 per cent. On the first introduction of anti-toxin, when the doses given were only 200 or 300 units, the mortality fell enormously; the number of cases of tracheotomy also fell. In the surgery, if you hear a croupy cough give the anti-toxin. Even if it is only an hour from the time you heard it to the time the patient arrives at the fever hospital, this may save tracheotomy being done. When you practise outside, you may not get cases into hospital for six hours or more, and having given anti-toxin at the first possible moment will make all the difference, not only to that child's life, but to the necessity for tracheotomy.

However careful we are, there will always be a certain number of missed cases. That is shown by the fact that we get in the Throat Department, fairly regularly, cases of post-diphtheritic paralysis in which there is no history of the child ever having had diphtheria. I am beginning to wonder whether it is missed cases of diphtheria which cause some of the deaths under anæsthesia. One of the most disturbing factors in medicine to-day is the steady increase in the number of deaths under anæsthesia. We had a case here the other day which started me on this line of thought. The doctor had sent a child up to have its tonsils removed, that child having recently had an acute attack of tonsillitis. My clinical assistant rightly said to the mother, "There is no question of taking out the tonsils at present; this acute attack must first pass away. The child has a bad tooth. It will be well to have this seen to during the time we are waiting." An anæsthetic was given, and the child collapsed under it, fortunately without a fatal result. The child was admitted into the hospital, and I understand that it was thought to have a diphtheritic myocarditis. I wrote to the doctor, and got a note from him that he had not thought the child's tonsillitis had been diphtheritic, but that subsequent to that child's illness there had been four or five cases of diphtheria in that road among children in neighbouring houses. I do not see how we are to avoid absolutely such cases, but you will cut the number of them down the more careful you are in regard to your diagnosis and your action in cases of diphtheria. Remember that in every case of diphtheria there is an affection of the myocardium, which makes an anæsthetic a serious risk for at least 21 days, and I think that question of missed cases of diphtheria and the possibility of deaths under anæsthesia in children is one well worth keeping in mind.

I now come to the question of routine swabbing. This is, of course, done in a fever hospital in all cases sent in as diphtheria. But it is done under two other conditions. It may be done in a hospital surgery to which there come a large number of patients who are seen by different doctors, and each doctor takes his own swab. Personally, I am doubtful of it on principle, and I think that if it is used you must be very careful to keep the two golden rules rigidly in mind. The moment you follow routine there is the danger that you will go by your routine instead of making a clinical diagnosis. I have been keeping an eye on the matter, so far as I can, and I do not think that in our surgery there are many cases slipping through undiagnosed with positive swabs. But my opposition to it is not that they may be slipping through; it is that it is affording bad teaching to the young men and women who are working there. What really sticks in your mind is not what members of the staff tell you, it is what you see them do and what you see done at the hospital that you remember. It is of no use my din-din-dinning into five dressers every three months these rules about swabbing if they see routine swabs being taken daily in the surgery. It is the same with the nurses; they are seeing it done, and they have a considerable amount of influence in these matters nowadays, when they go out into the world and work in welfare clinics and like places.

The other conditions in which you may do routine swabbing is if you become a medical officer of a school or a hostel. There the same medical officer is always responsible for the case;

but it is the matron or nurse, qualified or unqualified, who does the swabbing. There is something to be said for it if you are absolutely careful, and very strict with regard to the attitude which the nurse takes up. Once you allow her to say, " Oh no, it is no good sending to the doctor; we have not got the result back yet," then your routine swabbing is becoming a great danger. It is all right to allow the nurse to take swabs of every sick case reporting to-night who will be seen by you to-morrow, if she has also got her eye open and when she thinks a case might be diphtheria she rings you up to-night instead of waiting until the morning. Remember that some members of the nursing profession are very clever at spotting infectious disease; but it is only when you have thorough trust in the person working with you that this can be permitted, and you must stick to your golden rules just the same.

You may occasionally need to take swabs from the throat for reasons other than the confirmation of a diagnosis of diphtheria, but this is the most important reason, and as time is fleeting I will go on to the subject of smears.

SMEARS

Occasionally you can find the Klebs-Loeffler bacillus in this way, but not often in a case in which there is any doubt as to the diagnosis, and usually it is an entirely different type of case that a smear may be of value. It is of use in excluding Vincent's angina in a doubtful case of ulceration, which may be tertiary syphilis; but I want also to consider the possibility of its being of value in a secondary or primary lesion of the mouth.

When an army sets out upon a march it loses in its first few days a number of so-called sick, some of whom really are so, but of which the majority form the scum of faint-hearted scallywags that every army throws up, and to this the British Expeditionary Force was no exception in the summer of 1914. But by the time those who fell out in the approach march to Mons had reached home as the first sick of the Great War, the retreat was over and the battle of the Marne had been fought. These men were no longer scallywags, but for a short time heroes. One or two such from a Scottish regiment returned to a village in the north of Scotland, and during the period of enthusiasm kissed every woman in the place, from the youngest child to the gaunt and elderly maiden aunts. In this way a young girl of 14 was infected with syphilis upon her cheek. Ten years later she was making the preparations for her marriage after an engagement of $2\frac{1}{2}$ years, when she came to see me with a slight sore throat. There was an ulcer on her fauces which I felt pretty certain must be tertiary syphilis. I thought, however, there was a chance it might be Vincent's angina, and I took a smear. This was negative, and next day I had to tell her what was the matter with her, and then took a sample of her blood, whereby my diagnosis was confirmed.

The first thing I would impress upon you is that the diagnosis is no more made by the smear than it was by the swab. The confirmatory value, however, is inverted with the smear. Thus the finding of Vincent's organisms does not absolutely exclude syphilis. I have once seen a case where the smear was positive for Vincent in a young woman who was also suffering from secondary syphilis. It should, however, give you the support you need to withhold treatment of an anti-syphilitic nature, at any rate until a blood test had been taken. A negative report is, however, of the utmost value, because it is so easy to find the organisms of Vincent's angina in a smear that, if they are not there in a case where the diagnosis lies between Vincent's angina and a tertiary syphilitic ulceration, it is pretty certain that the latter diagnosis is correct.

In a case such as that which I have described you are between Scylla and Charybdis. On the one hand you do not want to put the patient to the mental agony of the suspicion that the lesion might be syphilis if that is unwarranted; on the other it is your duty definitely to tell your patient if the evidence in favour of it is sufficient. This case well exemplifies the dilemma. No one who has had to tell a clean-living young woman that she is suffering from syphilis can doubt the horror and the mental agony that such a person feels, even though you assure her that you know there is no fault on her part. Brought up in such knowledge of the disease as may be gleaned from such plays as Brieux's " Damaged Goods," she thinks herself foul and incapable of cure long after she realises you do not accuse her of incontinence. On the other hand, this girl's history illustrates the wickedness of not telling the patient the true nature of the disease before treatment is begun. We pieced it out bit by bit with the help of her memory and that of an aunt who also had migrated to London. After the pimple on the cheek had disappeared, symptoms had arisen that she had not connected therewith, but which were clearly secondary signs. For these she had attended the infirmary of the neighbouring city, and there had been told how she had a blood-poisoning that could be cured if she would take medicine for a considerable time. And she took it for a considerable time, long after signs had disappeared,

in all some six months. Some two years passed, and she was swept into war-work as a young shorthand-typist of 16 years at another Scottish town-port. Here she broke out with a further set of symptoms that clearly were of the type known as late secondaries, and again she went to the local infirmary, where the same things were told her with the same result, that she took medicine for what she thought was a long time, namely, some six months. Note that on neither occasion was she told the disease from which she suffered and on neither occasion was she told that the long period meant from two to four years. If a patient acquires syphilis he or she is entitled to know it; and patients will not realise that a long time means more than a few months after the disappearance of all symptoms unless they are definitely told so.

When on the horns of your dilemma it is hard to know what to do about taking blood for a Wassermann. Nowadays everyone except those who keep themselves excluded from the ways of modern life knows what a blood-test means. To take the blood is tantamount to letting the patient know you suspect he suffers from syphilis. It is best, therefore, to do as I did in this case and to tell the patient first and take the blood afterwards. And this brings me to secondary syphilitic lesions in the mouth. Patients gain confidence in the doctor if he strips them to the waist with a view to examining the heart and lungs, and at the same time the skin and lymph-glands will be open to examination and nearly always will afford confirmatory evidence of the suspicion raised in examination of the pharynx. The patient can then be told and a further confirmation made by a blood-test. There is, therefore, no temptation to try to make a diagnosis by a smear from the secondary buccal lesion.

When, however, there is a lesion within the mouth which you suspect may be a chancre, you may feel tempted to take a smear and look for the spirochæta pallida under the dark ground illumination. Let me warn you not to do so. I have always been thankful that I learnt about syphilis before there was a spirochæte, a Wassermann or salvarsan. When we saw a lesion that might have been a chancre we were taught by the late Sir Alfred Fripp never to make the diagnosis until some secondary lesions appeared. However characteristic that primary lesion seemed, there was a doubt, and you doomed that patient to four years' treatment as soon as you began it. The loss of a few weeks was well made up by the certainty of diagnosis. Nowadays with genital lesions you do not wait so long; the dark ground illumination shows you the spirochæta pallida. It does so because indistinguishable spirochætes are not the normal inhabitants of these mucous membranes. But they are so of the mouth. There is never the presumptive evidence of syphilis in a mouth lesion that there is with a lesion in the genital mucous membrane, the lesions in the mouth do not give the characteristic signs of the Hunterian chancre, and within the mouth are spirochætes of harmless nature indistinguishable from the spirochæta pallida. If you meet a pathologist who says he can tell the difference, run away from him. In these cases, then, we are faced with the same problem as were we older clinicians before the modern advances in pathology and pharmacology, and if you see such a case I advise you to wait for secondary symptoms. You might be justified in beginning treatment when a positive Wassermann developed; but, personally, I should wait, in addition to this, for some secondary lesion such as the profound anæmia, a rash upon the forehead, or an enlargement of the supra-trochlear lymph-glands.

Excluding the lips, buccal chancres are very rare. I have seen one upon the tongue. I know a patient who was infected upon the gum at a tooth extraction. I have not yet seen one upon the tonsil.

Current Cases—No. II.

IN the GAZETTE of 5th April, 1930, under "Current Cases—No. II," the following case was reported, as it has turned out, prematurely. A résumé of what was then published is as follows:

On 19th February, 1930, V.P., a muscular girl of 17 years, was admitted to Lydia under Mr. Steward with an acute illness of five days' standing, characterised by a high pyrexia, vague symptoms and signs of peritonitis with diarrhœa. Two days later the temperature fell, but the patient developed neck retraction and other signs of meningeal irritation, also of encephalitis. From this she recovered, but nine days after admission she was found to have an abdominal abscess, which was drained by Mr. Steward; the pus was apparently pneumococcal, and, though pneumococci were not grown, gram positive dipplococci were to be found in it.

One month later she developed a small empyema at the right base, which was spontaneously absorbed. A month later still, immediately after first reporting the case in the GAZETTE, she

rapidly developed a large collection of clear fluid in the abdomen. Through a small incision, Mr. Steward drained 20 pints of fluid; a small calcified nodule was removed from the great omentum, and it was suggested that the fluid was the result of a tuberculous peritonitis; the fluid was sterile, but contained only 1-2 per cent. of protein, which suggested a passive exudation rather than tuberculous peritonitis. During the following three months, although the patient remained fairly fit, paracentesis abdominis was necessary on four occasions for recurrent collections of fluid, and finally, on 25th July, 1930, Mr. Steward again decided on laparotomy. At operation, beyond evidence of a chronic low-grade peritonitis, nothing new was found. The patient subsequently developed hiccoughs, became unconscious and died on 1st August, 1930.

Before describing the post-mortem findings, it is necessary to recall that twelve months previous to the onset of the present illness the patient had had a four-weeks' illness with abdominal pain and jaundice, also she had had two previous attacks of painless jaundice. Autopsy revealed little of the adhesions from the abdominal abscess, but in the right iliac fossa there was a mass of caseating tuberculous glands, which had not broken through the peritoneum, but most interesting of all was the discovery of a small scarred liver with numerous regenerating nodules, evidently the result of a subacute atrophy, no doubt the true diagnosis of her previous illness.

I am indebted to Mr. Steward, as before, for permission to record this case.

J. B. B.

The Statue of Thomas Guy

READERS of the GAZETTE may have noticed that the statue of Thomas Guy in the front quadrangle has recently been in process of cleaning. It has not been touched for many years, and through the kindness of His Majesty's Office of Works the Governors have been advised as to the best method of cleaning it. The method adopted is to scrub it down with dilute ammonia and water. During the discussion as to the best method of cleaning the statue the question arose as to what it was made of. It has always been understood at Guy's that the statue was of brass, and it has been so described in Wilks and Bettany's "History of Guy's Hospital," but all the authorities who have inspected it have expressed the opinion that it is probably bronze, as statues have very rarely been cast in brass. In the list of London statues published by the Homeland Association it is described as being of bronze.

The statement that the statue is of brass rests on the authority of a minute of the Court of Committees of Tuesday, 21st March, 1731/32. The minute is as follows:—

"Mr. Trear Reported from the *Commee* for Consideration of Erecting a Statue in memory of Thomas Guy, Esq., the Founder of this Hospital That they had agreed with Mr. Peter Scheymaker, a Statuary, for the making of Such Statue in Brass at y price of 500 Guineas and that the Clerk has prepared an Agreement in writing wch being now read was approved.

"Mr. Scheymaker by Direction of the Said *Commee* now attended with a model of Such Statue to be viewed by the Governors of this Hospital which model is approved by this Court of *Commees*."

On first cleaning a small portion the experts believed that the statue had been cast in bronze, but the minutes of the Court of Committees being so explicit it was of particular interest to determine the nature of the alloy used. Professor Gibson, assisted by Mr. S. Holt of the Chemistry Department, took some filings from different but inconspicuous parts of the statue and found them to contain:—

Copper	.. 82.6 per cent.	
Zinc	.. 15.9 per cent.	
Lead	.. trace	not more than a combined total of 1.5 per cent.
Tin	.. trace	
Iron	.. trace	

Brass is an alloy containing usually 66.6 per cent. of copper and 33.3 per cent. of zinc, and the high copper content of the alloy used for the statue is unusual. It is a brass of the Dutch Metal type, which generally consists of about 80 per cent. of copper and 20 per cent. of zinc.

So the minutes of the Court of Committees are correct and the statue of Thomas Guy is made of brass after all.

It is also a matter of interest that the pedestal, which has been described as of stone, is of marble, though it has been so affected by the atmosphere that it looks like stone.

H. L. E.

Dental Sepsis and its Relationship to Mental Disease

By Arthur Bulleid, Esq., L.D.S., R.C.S. Eng.

(This Lecture appeared in the *British Dental Journal*, November, 1930)

" Canst thou not minister to a mind diseased ? "

WITHIN the last 20 or 30 years there has been a tendency for all mental hospitals to employ dental surgeons on their honorary staffs, and, in consequence, many dentists have had a unique opportunity of observing the effect of dental sepsis both as a cause and as an effect of mental processes. One has not to go back far into a dim past to learn that mental disease was considered as being entirely out of the sphere of general medicine, and to learn that " treatment "—preserve the irony—was restraint and segregation. That any physical disability could or did play any part as a causal agent in mental disease was not even considered, and that there could be any connection between disease of the mind and disease of the body was totally unworthy or credence.

During the last 20 years or so, however, the pendulum has swung round from the psychogenetic to the physiogenetic side, and a more recent tendency has been an attempt to explain the ætiology of mental disease from the physical standpoint. As is usual in these violent changes, the opinions of extremists have forced themselves to the fore and have, for a period, held the field. In the wake of the extremists have come a more reasonable band of thinkers, who have held the balance more fairly and accurately between extreme opinions.

The danger has always been that dogmatic statements of relief and cure of mental illness by various treatments have been made on too few cases, and, as a rule, by too incomplete observations on these cases.

Physiologists have shown that because a cell looks normal under the microscope it is not necessarily normal in function, and biologists assure us that there can be no function without construction. Cotton in his book " Defective, Delinquent and Insane," stated that in his investigations into certain types of insanity he found that a disturbance of the anatomical structure of the brain accompanied the mental symptoms. If the disturbance is of a transient character the brain will return at once to normal when it is removed, but if the disturbance is of a sufficiently lasting character there may be permanent alteration in the brain leading to a continuance of the mental symptoms. The disturbance caused by bacterial toxins is probably at first of a transient nature, and if removed allows the brain to return to normal. The criticisms of Cotton's work have now been fairly well crystallised, and will be mentioned later in this article.

With reference to the possible ætiological influence of dental sepsis in mental illness it seems absolutely essential to point out that, in order to ascribe a definite physical lesion as being the direct cause of a mental condition, it is necessary to distinguish carefully between cause and effect. Take the following as exemplifying this point. A case of dementia præcox often gets lazy and neglects his teeth, which, in consequence, when examined by the dental surgeon, show obvious signs of disease. Because the dementia and the dental sepsis are found together it does not necessarily follow that the latter is the cause of the former. In fact, it is usually the reverse which is the truth—the dental sepsis is the direct result of the neglect of the dement. Take another example of this mistaking of cause and effect. A patient with hypochondria often notices or discovers all sorts of small physical ailments, some or all of which have in all probability been present for many years long before there was any suspicion of any mental symptoms. Of course, it can be argued that the continual absorption of bacterial toxins from various foci of infection had been going on for a sufficiently long period to have brought about a permanent alteration in the brain, but it is extremely difficult to offer uncontrovertible proof of this contention.

Again, if a physical lesion such as dental sepsis is the direct cause of a general systemic lesion it is generally possible to prove the connection by serological experiments. Dental sepsis is streptococcal sepsis, and if the infecting streptococcus is isolated either from the apex of an extracted dead tooth or from the depth of a pyorrhœic " pocket " and agglutination tests are carried out against the patient's serum, then a positive agglutination result in a fairly high dilution of the serum is tantamount to admitting that there is a definite connection between the dental sepsis and the systemic condition. In most cases it should be possible to obtain such a positive agglutination result if there is any connection between the dental sepsis and the systemic lesion whether that lesion is physical or mental.

Speaking generally, most extreme cases of any kind of auto-toxæmia, if they are productive of mental symptoms at all, cause a psychosis the characteristics of which are classified under the heading of " Infective Exhaustive Psychosis," or some type, at least, of acute or chronic organic

mental reaction. In this group there is no doubt that removal of septic foci, such as dental, does lead to amelioration and even cure of the mental condition. Such cases are really cases of bacterial toxæmia—usually streptococcal—and the removal of the sepsis results in the betterment of the mental lesion just as it would if the systemic lesion were a secondary anæmia, or an infective arthritis. If the psychiatrist can assure the dental surgeon that the mental symptoms are in keeping with a physiogenetic cause, then all other conditions being observed, such as the absence of any other obvious and adequate cause, and a positive serological confirmation, dental sepsis may rightly be ascribed as the most probable " precipitating " cause of the mental illness. Experience of many cases of insanity is, however, now tending to support the contention that with the exception of the toxic exhaustive or other organic mental states, practically no mental illnesses are the direct result of physical ailments.

Turning next to the possible results of treatment of mental disorder by the removal of sources of focal sepsis, we have to observe that, even after taking the most careful observations during the treatment of mental patients, it is extremely difficult to state definitely the role that sepsis plays as a causal agent. Some mental illnesses, speaking generally, have a good prognosis ; take, for example, a case of simple depression or a simple maniacal attack. In such cases recovery would normally be anticipated without any special treatment, and yet, if during the period of the illness dental sepsis had been eradicated, it might be quite possible to ascribe the recovery to the dental treatment. This would be erroneous, and yet such cases might be cited as proof of a physical ailment causing a mental condition.

Another common mistake made is to confuse the effect of dental treatment and the effect produced by the physician and the dental surgeon both paying marked attention, and also a lot of time, to the patient during the general investigation of the condition, during the dental interference, and during the period of " after-care " of the patient. It is accepted now by many psychiatrists that one of the great factors in mental therapy is the time intelligently devoted to the patient. In other words, suggestion plays a large part in the treatment, and the favourable results sometimes claimed by the removal of dental sepsis may in reality be due to the " suggestion " advanced during the course of treatment rather than to the removal of the sepsis.

A patient is assured that the teeth are unhealthy and are causing his illness, and that putting the mouth in order will undoubtedly help him to get better. This suggestion is carried through the dental interference and into the " after-care " of the patient, with the result that in a certain proportion of cases the patient does improve. All fair-minded observers, however, must realise how impossible it is to state dogmatically whether the removal of the dental sepsis or the " suggestion " were the cause of the betterment of the patient. Both lines of treatment are important, but who could honestly say which was the chief factor in the improvement of the mental condition ? This is merely an example of the value of the removal of dental sepsis without in any way being proof of the causal effect of such sepsis on the mental condition.

It is unfortunate that it is so difficult to obtain " control cases " in attempting to estimate the value of dental treatment in mental cases, because then it would be more possible to give accurate figures. In spite of the fact that no two cases seem alike, it is always advisable to attempt to check results by the use of carefully selected " controls," even if such cases are difficult to obtain, as it does help to avoid obvious fallacies. If the so-called " control cases " are treated in exactly the same manner as those for which dental work is undertaken, more reliable figures as to the results of the dental treatment can be obtained. Exactly the same time, care and suggestion are expended on the " control cases," though obviously the suggestion treatment will differ as no dental interference is being carried out. If a sufficient number of cases can be collected and treated on these lines, then valuable data will be obtained.

This is one of the criticisms that have been advanced against Cotton and Hunter. It is suggested by many mental specialists that neither of these observers used adequate controls, and that there was an indiscriminate selection of patients for treatment on their lines, and that they attributed cure too often to the removal of septic foci in cases which would in all probability have recovered in the ordinary course of events without any specific treatment.

Further, it is pointed out by many investigators that physical illnesses may be the starting-point of delusions. For instance, pyorrhœa may give rise to delusions of food-poisoning. In such cases, local relief—that is, the treatment of the pyorrhœa, which, it should be added, should always be given—will help to cure the " local " delusion, but will not in any way help to better the general mental state unless it is coupled with " suggestion " treatment by the physician.

Bearing these considerations in mind, let us consider now the methods and system of treatment to be adopted.

In all cases in which the eradication of dental sepsis is indicated, and in a great many cases whether the sepsis is the direct cause of the mental

condition or not, it is advisable from the point of view of aiding the general physical health that such sepsis should be removed, it is essential to know accurately the exact dental state and the degree of toxic absorption. This entails a knowledge of the right time to interfere and the rate at which dental treatment shall be carried out; and coupled with these facts must come the mutual co-operation between the patient and the dental surgeon. This should, in all cases, be determined by the physician in charge of the case, and is of the highest importance, as actual harm may easily be caused by dental treatment given at the wrong time. It is not too widely accepted, but patients suffering from melancholia quickly lose confidence if they are robbed of teeth whilst still in the acute depressive stage of their illness. Anxiety cases, too, get more frightened and anxious if dental treatment is carried out too soon, and in such cases the value of the treatment may be nullified and may even be actually harmful if carried out at the wrong time.

It is essential that most dental treatment should be carried out slowly, and this is particularly the case when it necessitates the extraction of teeth. One can go further and say that the extraction of "pulpless" teeth showing "apical osteitis" in skiagrams must be carried out with the utmost circumspection, as the reaction on the patient is generally very marked. "Open" sepsis of the pyorrhœic type is less likely to cause reactions, but even then the greatest care should be taken not to overdo the amount of treatment at one sitting. The policy of "ca' canny" really is justified in carrying out dental treatment for the mentally afflicted even when a violent reaction is not anticipated from toxic absorption.

All cases which present acute dental symptoms such as acute alveolar abscess must, of course, be relieved whatever the mental condition, but then the treatment is merely to relieve the local dental lesion and is not in any way a specific treatment for the mentally ill.

In cases of general paralysis of the insane, dental treatment and the manner in which it is given is of particular importance. As a general rule it is advisable to postpone the dental as well as all other forms of treatment until after the completion of a course of malaria, and then all the precautions already mentioned should be observed. In those cases of general paralysis which are not given malaria, the dental treatment should not be given until the physician gives the word, and then the rate should be carefully regulated by the resultant reaction as observed by the physician.

The conclusion that one is drawn to is that dental sepsis *per se* is hardly, if ever, the cause of any mental illness, and even when coupled with infection in other parts of the body can only accurately be described as the specific cause, amongst other similar specific causes, of the mental condition in the group known as the "organic reaction types," or very rarely in some other forms of psychoses. It is so easy to ascribe cure of a disease, even a physical one, to a certain line of treatment, because betterment has come after the institution of such treatment, when in quite a large percentage of cases the same result might well have been obtained with no specific treatment at all.

Allowing, however, that most mental illnesses are not the direct result of physical ills, this does not mean that eradication of sepsis, whether dental or otherwise, is contra-indicated and should not be undertaken. Just, however, as it is most unwise to promise either cure or amelioration of mental symptoms by the removal of dental sepsis, so it is even more unwise to plunge precipitately into the removal of such sepsis at the wrong moment and at the wrong rate. The likelihood of making matters worse by the injudicious extraction of teeth is much more probable than spectacular results by the same means, and at all times it is essential to obtain the patient's co-operation.

One would like to stress the importance of carefully investigating the reports of cases purporting to depict more of mental ills by the removal of septic foci, as in so many cases the figures are fallacious for the various reasons I have endeavoured to explain in this article.

As a last word I should like to state that in my experience it is essential to weigh up the effects which may be produced in the mental patient before one commences dental treatment. An absolutely accurate diagnosis of the mental state must be made by the physician and the closest co-operation observed between the patient, dental surgeon and physician at all stages of treatment, or else confusion will be made worse confounded.

Some Main Points in Dental Anæsthesia

By Ronald Jarman, Esq., M.R.C.S. Eng.

MR. CHAIRMAN and GENTLEMEN,—My subject to-night is somewhat difficult, as an excellent paper was read by Mr. Simmons in January, 1928, on General Anæsthesia as related to Dentistry. My subject to-night is to deal with the practical side and to leave the theoretical side entirely alone. As I proceed, some of you may think that too much stress has been laid on small details, but I want you to bear with me and remember that the small

things in life are just as important as the big ones.

The anæsthetics that I am going to discuss are nitrous oxide and oxygen, ethyl chloride, and ether.

It will be of interest to some of you to know that nitrous oxide was found by Sir Humphrey Davy, in 1799, to have the property of giving temporary relief to people who had headaches and toothache. He tried it on himself, and actually had a tooth extracted whilst under the influence of the gas.

It fell to Horace Wells, an American, in the years of 1839-1845 to exploit it to its present use. This came about through Sir Humphrey Davy publishing his papers on Medicated Vapours, which created a great vogue in America, and the famous ether and gas parties became known. These were parties of young students who used to foregather and inhale nitrous oxide or ether just for the sake of the exhilarating feeling. It was whilst this was going on that Wells noticed that they could damage themselves very badly, but were not aware of this, thus giving him the idea of its use in dental extractions. He tried it on himself at first, and, finding it a great success, proceeded to use it widely in his practice, and at the same time teaching his assistants to use it as well. He was asked to give a public demonstration, at which he failed miserably, and this so impressed his mind that he took his own life shortly after. His work was carried on by his pupils, among whom was the founder of ether anæsthesia, namely, W. G. Morton. So much for the early history.

Now to deal with the practical side of dental anæsthesia. We will take the usual method with a private patient.

The dental surgeon has asked him to be present at a given time and has warned him not to have any food for at least four hours before, though there are emergency cases where this is impossible. The patient is sent for and introduced to the anæsthetist, and then asked to make himself comfortable in the chair, the nurse seeing that all tight things, such as collars and belts, are removed beforehand. The anæsthetist is then able to explain exactly what is going to happen. His main object is to banish fear, this is the key to the whole situation, and once the patient has got confidence the anæsthetic will go very smoothly. Another point is the tremendous value of team work. If the surgeon, the anæsthetist and the nurse know each other's method, the success of the operation is assured.

The dental surgeon then adjusts the mackintosh and clean towel around the patient's neck, places the prop in the mouth (sometimes the anæsthetist is asked to do this), and the anæsthetic is commenced. The nasal piece is adjusted, the patient has his hands clasped together, eyes are closed, and he is asked to gently relax whilst breathing quietly through his nose. The position of the patient in the chair is of the utmost importance.

Before describing the symptoms of anæsthesia, I wish to lay stress on the fact that every patient is different and so is the anæsthetic. To teach gas and oxygen anæsthesia is difficult, and it is only by experience that one becomes proficient.

The following symptoms were described by Thomas C. Bonney, D.D.S., in his article in the *British Journal of Dental Science* of January, 1930. I shall refer to these as I think they are clearer than I could have described them myself.

The development of anæsthesia has been divided into four stages: (1) The analgesic; (2) the so-called excitement stage or the induction period; (3) the operative or surgical stage; (4) the paralytic stage, which should be avoided as the sign of aphyxia is predominating.

The symptoms are taken as follows: A. The respiration; B. The eye reflexes; C. The pupil reflexes; D. The muscular action.

(1) Respiration is our best guide as to the course and depth of anæsthesia.

During the early induction period the respiration is under the control of the will in the adults and can be guided by the anæsthetist. Later on, respiratory arhythmia may develop; this is marked in nervous and highly-strung types of patients. The breathing becomes jerky and spasmodic. This phenomenon is seen if the nitrous oxide vapour is too strong and can be relieved if more oxygen or air is given. The same happens if the oxygen is in excess and the patient remains too light. The balancing of the gases at this point ensures a smooth induction, so the ideal is to give sufficient nitrous oxide to anæsthetise the patient and at the same time oxygen to supply body requirements and to sustain the respiratory function.

From the induction period the patient passes to the third stage, and the breathing becomes full, regular and machine-like, and snoring may be present. This is referred to as the automatic stage. This stage should be kept, and, by keeping the mixture of gases steady, the anæsthetic can be prolonged indefinitely, at the same time the condition of the patient must be watched, and it may be necessary to increase the amount of gas or oxygen to keep the anæsthetic even.

When the patient passes from the third stage to the fourth the respirations become accelerated, the patient cyanosed, then the breathing becomes laboured due to the deprivation of oxygen, and the expiratory efforts are forced and prolonged. The muscles start to twitch and jactitations are present. The patient becomes more cyanosed and the pupils are very dilated, and may be irre-

gular. The patient starts to gasp and stops breathing at this point; no time should be lost to restore the normal respiration by artificial breathing, the automatic breathing will return first, and then the patient can be allowed to return to consciousness or the anæsthetic can be continued.

Now to deal with the eye reflexes.

Next to the respiration, the symptoms of anæsthesia exhibited by the eye are the most important. During the induction period, the eyelid is resistant, but as the narcosis deepens the resistance becomes less. One must not mistake the resistance of overdose to the resistance of light anæsthesia; the first is due to the spacticity of the muscle, and the other is due to normal reaction.

The eyeball in the early stages has jerky movements, and moves about from side to side, then gradually settles down to the ideal position, that is, eccentric fixation, or the eye pointing down or up, as the case may be. In plain language, a squint or a strabismus. As the patient gets deeper the eye becomes centrally fixed; this is a sign of deep anæsthesia. At this stage there is usually a great deal of lacrymation. When the pupil starts to dilate is the sign to stop and be careful. The pupil dilates in the early induction stage, then returns to normal, and at the ideal stage remains normal or slightly dilated. In the pre-paralytic stage the dilatation is complete and does not respond to light as it does in the light stage. When morphia has been given the pupil does not react in the same way in the early stages, the pupil may not dilate at all, and in the surgical stage the pupil will remain normal, perhaps a little smaller than normal. In the paralytic stage it dilates as before as the central nervous system has been paralysed, and this stage is of extreme danger. One must always remember that if a patient has got a widely-dilated pupil which does not react to light, and the lustre is diminishing, then that patient is much nearer complete collapse than is pleasant, and something must be done at once. That is, stop the anæsthetic, give oxygen, see that the airway is clear, and make sure the patient is breathing quite easily. Give CO_2, if necessary, and so on.

Widely dilated pupils with morphia is always a sign of danger. Muscular signs, this is chiefly to do with skeletal muscles as I have been describing, the eye ones, that is, the conjunctival —palpebral reflex is elicited by stroking the eyelashes—this is only present in light anæsthesia. The corneal reflex should never be elicited, as there is a danger of introducing infection into the eye; this disappears soon after the previous reflex. The skeletal muscles do not respond until an overdose is given, and jactitation is the first sign of this, though this is not always present, and the body may go into extreme opist otisnos or into the extreme paralytic stage without giving any warning at all. Jactitation usually starts in the hands first and can be watched; oxygen or air can be given to relieve this at once. In any case this can be overcome by giving air or oxygen at once.

Having described the symptoms of gas anæsthesia more or less in detail, it should impress one with the fact that the anæsthetist is entirely responsible for the patient, and should not be interfered with by anyone. If the patient starts to come round all too soon, the operator should be warned, and it rests with him whether the patient is re-induced or the operator finishes his work with the possibility of the patient feeling anything.

Before starting, a sponge should be placed in the mouth at the base of the tongue. The sponge should have a tape attached at the centre for safety sake. The idea is to stop any foreign body going down the throat into the trachea. It also helps the anæsthetist and absorbs a certain amount of the blood, thus preventing the patient from waking up with a mouth full of blood. This device should be used with young and old alike. When the operation is finished, the patient should be given a little oxygen and allowed to come round very slowly; this prevents any shock and any unpleasant memories. There is no feeling of stifling, and the patient just wakes as though out of a sleep.

There may be a time when the anæsthetic does not go too well, or it does not last long enough, and the patient may come to complaining that a certain amount of pain was felt. This can be avoided by the anæsthetist if, after the operation has finished, he re-induces for a few seconds and then allows the patient to return to consciousness. If this is done there will be no complaints and all is well. In any case both the surgeon and the anæsthetist should reassure the patient that this was not so and make sure that they are believed, because if another anæsthetic has to be given, the patient may be very nervous and thus give a certain amount of trouble during the induction stage.

As the patient is returning to consciousness it is not wise to talk too much, but just occasionally say where he is and reassure him quietly, take the pulse rate and notice any undue pallor. Make certain he is quite all right before he leaves your house, and, if possible, see that he goes home with a friend to rest for a short time, and in any case get him to take a car home and see that he does not drive himself, unless he has someone with him. Make sure of any hæmorrhage, suggest smelling salts or sal volatile if necessary, or again

a small glass of brandy if the patient is not quite sure of himself.

Taking small children next, one cannot spend too much time in gaining the confidence of a small child. It may be the first anæsthetic, and, if treated roughly, they will remember it for the rest of their lives. Allow them to take their time if possible, and talk to them the whole of the time. It is usually found that most children like having everything explained to them, and if this is done they usually go to sleep without any trouble. Of course, there is the extremely nervous child, and one has to resort to ethyl chloride; otherwise a nasal gas and oxygen is taken just as well as an adult.

The same precautions should be taken during the operation as well as for an adult. The anæsthetist should make friends before and after the anæsthetic.

With nursing mothers and expectant mothers the utmost kindness and patience should be employed; with the latter one should not give too long an anæsthetic unless the patient is in hospital and can go back to bed.

In the case of children and expectant mothers, barley sugar, taken two or three days before and after the anæsthetic, helps them tremendously. Premedication may be necessary, and is a great boon to the mothers.

Troubles and dangers that one may encounter.—The patient may have nasal obstruction. This can be overcome by using great pressure, the face mask, or adding a little ethyl chloride on to a pad and holding it in front of the mouth when using a nasal piece.

The patient may be very nervous, and to get a quick induction the face piece can be used and then changed over to the nasal. An easier way is to ask the dental surgeon to give the patient one or two tablets of Allonal or 10 grains of bromide. This keeps him nice and quiet and the anæsthetic is taken quite easily. One may be confronted with a cleft palate, and the face piece has to be resorted to, but, if possible, change over to the nasal and put the accompanying mouth tube in as well. This prolongs the anæsthetic and enables the operator to do all that is necessary.

Alcoholics and people who live in the fresh air usually take a long time to induce, and are somewhat difficult to keep under; premedication helps here and prevents the anæsthetist keeping the patients unnecessarily cyanosed. In any case the pressure must be kept up and a large sponge in the mouth helps the anæsthetist a great deal.

Anæmic and frail patients are induced easily and take a minimum amount of anæsthetic; this should always be remembered, as they are apt to collapse rather suddenly. Patients with hearts and chests should always be treated with reverence and gas and oxygen should always be given.

Dangers.—The patient may faint, have a fit, collapse, or go into tetany. In all these cases the anæsthetic must be stopped and oxygen given at once. Carbon dioxide 5 per cent., with oxygen, is better still. Lay the patient out flat, either in a chair or on the floor, pull the tongue well forward and make certain that the airway is clear. If a fit, put a wedge in the mouth. Artificial respiration may be given, and as soon as the patient starts to come round get him on to a couch and let him lie there quietly until he is conscious. Do not let him wake up on the floor as it will upset him, and probably give him a severe fright which is not very easy to explain away. Cardiac stimulants can be given in the shape of Kurshman's solution, coramine, adrenalin and strychnine. A little brandy or some hot tea soon puts the patient in the position to go home, and rest is always advised.

Premedication is always helpful, and the nervous, alcoholic, athletic type of patient takes his anæsthetic much more easily by asking them to take a few hours before one or two tablets of allonal or 10 grains of bromide or some such dose, or any mild hypnotic. This is a great boon as it impresses the patient and leaves a very good impression.

I think I have dealt with all types of patients; if not, I hope at the end someone will be kind enough to remind me.

Now to deal with the nursing-home patient or the hospital patient. By this I mean the one who has to have a few days in bed and have a general anæsthetic. These are the ones who have to have a jaw operation or all the teeth removed, or impacted lower eight. The patient usually goes in the night before and has got used to his surroundings by the morning. He has the choice of atropine, grain 1/100, omnopon and scopolamine, atropine and morphia, avertin or intravenous anæsthesia such as sodium amytal or perucitin, just as the case may be. Personally, I think if he has omnopon 2/3 and scopolamine 1/150 he will be sleepy before he gets into the theatre. This should be given one hour before. The only anæsthetic that need be given is gas and oxygen by the endotracheal method, and he behaves perfectly. There is no danger of anything going down the trachea as the back of the mouth is packed off and he is having the safest of anæsthetics. The apparatus used for this is the McKesson, the Walton, the improved Guy's Hospital pattern, or some improvement of the Boyle's apparatus.

The catheter can be passed by the nose or the mouth, and this form of anæsthesia is a great boon to all surgeons who operate on the face or head.

Ether can be added to the gas and oxygen at any time if this becomes necessary, which is very rare.

Ethyl chloride is used for children who are difficult and for adults that need more than gas and oxygen to keep them under. It is also used for induction purposes so that one can pass the catheter for endo-tracheal anæsthesia.

Lately, gas and oxygen is being combined with 5 per cent. carbon dioxide, and this is said to produce an easier and smoother anæsthesia.

At the present time I have only done 200 cases in this way, and I must say that the condition of the patient remains perfect the whole time, but they are apt to become very light and struggle through the anæsthetic. With more experience this may be overcome.

This is an American idea; again they are using ethylene and CO_2 instead of gas and oxygen. They say this is safer and better, and also the stage of surgical anæsthesia is so much better, though they have to be induced by N_2O and have a scent pad put on the nose piece before switching over to ethylene and CO_2. There is a definite danger of explosion in this method, but very few have been recorded. According to the latest papers and statistics, Gwathney states that it is a great success.

I am hoping now that I have discussed everything from the practical point of view, and that, if I haven't, they will be brought up in the discussion.

The apparatus I advise is the McKesson or the Walton improved model.

Correspondence

"Abram's Box"

To the Editor of the GAZETTE

SIR,—As the result of a review I wrote for the GAZETTE concerning a book by Drs. Perkins and Parkes, Dr. Blaikley and I were invited to be present at a demonstration by Dr. Eric Perkins of his methods of diagnosis.

Dr. Eric Perkins is a disciple of Dr. Abram, and actually studied for some time under "The Master" in America. I maintained in my review that, although the method might seem fantastic, I could find no satisfactory exposure of the claimed phenomena, and that, until such was forthcoming, it was unwise to ridicule its exponents.

I went to this demonstration hoping to be convinced that some truth existed in the method and some sincerity in its exponents. Dr. Blaikley had formed what proved to be an eminently more sound judgment of the *denouement*.

We arrived punctually at 8.30 p.m., and were received with apparent enthusiasm by Dr. Perkins. Dr. Perkins, although prone to lengthy digressions, converses fluently upon his subject. In the performance of diagnostic tests upon the blood of patients it is necessary to have a healthy young adult connected to the diagnostic box whose abdomen is exposed for the percussion of various reflex dull areas indicative of certain diseases. For this purpose Dr. Perkins had a young woman who had previously been a patient and was cured of persistent headaches. Dr. Blaikley and myself were both permitted to percuss the abdomen, but, except in one rash moment of pity, with no success.

I cannot go into details of the strange pseudo-artistic furnishings, the subdued lights, the musical interludes, or Dr. Blaikley's persistent bluntness in pointing out only too obvious weakness in the method and demonstration. This carping criticism at times threatened to upset Dr. Perkins's sensitive subconscious reactions and end the demonstration.

In any case, we have drunk wine with Dr. Perkins and accepted his hospitality. In the name of charity we must content ourselves with the modest statement that we consider the whole business as practised by Dr. Perkins to have no medical significance whatever apart from its admirable suitability as a means of faith cure.

Our private opinion of Dr. Perkins and our impressions of that adventurous night must be kept for intimate ears.

I have made notes of the actual tests performed and the results obtained, with also the more important conversational sallies. This I did in order that any inquisitive mind should have satisfaction of the reasons for our extreme judgment.

Yours, etc.,

Guy's Hospital, S.E.1. L. W. CANN.

House Officers and Undertakers

To the Editor of the GAZETTE

SIR,—I have read with much interest the two articles by "R. C. B." on "Hospital Comparisons." It seems unfortunate that he did not explain more fully the American system of house appointments. As was mentioned, although the degree of M.D. is granted, one is not allowed to practise in a State until one has held resident appointments there for at least one year, usually two years at the best hospitals. This time is spent in all departments, medical, surgical and specialist, and is looked upon as the most valuable period of hospital training. This system has always appealed to me as a much better method of improving medical education than increasing the minimum of study from five to six years, as has recently occurred in England.

The controversy between hospitals and undertakers turns, I believe, really on the question of embalming, which is the most lucrative side of undertaking and is much more popular there than here. Anyone who has attended a post-mortem examination will readily understand that it is quite impossible to embalm a body after the mutilation it has suffered, although it may be possible to inject the head if the brain has not been examined, and this latter is the reason why special permission has to be given to examine the brain.

It was, if my memory serves me correctly, in Chicago in 1928 that the Undertakers' Convention met to decide on the best way of speeding up business, and I imagine they will do all in their power to prevent an extension of post-mortem examinations.

Yours, etc.,

Guy's Hospital, S.E.1. R. E. SMITH.

"Dental Mechanics"

To the Editor of the GAZETTE

SIR,—I shall be obliged if you will allow me to comment upon an observation made in the review of the publication "Dental Mechanics" in your last issue.

During the course of several years' work in the dental treatment of children, involving the examination of some thousands of cases annually, I have seen a large number with crowding due to misplacement forwards of the sixth-year molar subsequent to the premature loss of the deciduous molars, as a result of which the second premolars, and later the canines, are crowded out of the dental arch.

This abnormality, in fact, appears to be becoming increasingly common. Treatment, in circumstances which do not permit the use of corrective appliances, is necessarily radical, and the extraction of the first premolars has been found, as a rule, to be quite successful, the canine teeth quickly moving into their correct positions in relation to the incisors.

In cases where the first molars have been extracted at about the time of eruption of the second molar, there has been considerable loss of function due to tilting forwards of the latter tooth.

Yours, etc.,

A. F. PERCY.

9, Third Avenue, Bangor, Co. Down.

Hospital Information, etc.

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CAMBRIDGE UNIVERSITY.
December, 1930.

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PART II.
Pathology and Pharmacology.
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Births

BRAYFIELD—On January 28th, 1931, at 1, Gunterstone Road, West Kensington, London, to Winifred, wife of F. F. Brayfield, a son.

FARWELL—On January 10th, 1931, to Phyllis, wife of Mervyn Farwell, L.D.S., R.C.S. Eng., of 50, West Street, Chichester, a son.

SELBY—On January 24th, 1931, to Dr. and Mrs. H. J. Selby, Newnham-on-Severn, a son.

Death

PALMER—On January 15th, 1931, at Holford, Longfellow Road, Worthing, Frederick John Morton Palmer, M.B. Lond., F.S.A., aged 78.

EDS. { P. M. F. B. / P. V. R.

GUY'S HOSPITAL GAZETTE

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PASSIM

THE anæsthetist is a long-suffering member of the community, and to his many burdens has been added another and by no means negligible load. How far does his responsibility extend? That he should be responsible for the care of the unconscious patient in the theatre is only just; that he should be held responsible for sudden deaths under the anæsthetic is also just; that such deaths should be the subject of public investigation by a coroner, who is often a layman, does not seem to our law-givers unjust, but that he should be expected to incur the liability of accidents happening to the patient after leaving the table seems to be very unfair. Often in small cottage hospitals or in private houses he acts as a porter, taking the patient back to bed and helping the nurse to arrange him comfortably in bed, but this is surely an act of grace on his part, and he cannot be expected to watch over the unconscious patient until he recovers from the anæsthetic. His time is too valuable, if an adequately trained nurse is attending the case, to waste in a supervision which is usually unnecessary, and which must always be resented by the nursing staff.

Accidents do, however, happen occasionally; the too hot water-bottle, the arm twisted under the unconscious patient, and such minor tragedies which we have always felt to be the mark of indifferent nursing rather than the fault of the anæsthetist's, and such accidents invariably bring with them acrimonious litigation by the paralysed or scalded patient.

It is time, therefore, that the position of the anæsthetist should be clearly defined in matters like this. Personally, we are of opinion that, when he is giving an anæsthetic, he has worries enough to occupy his mind, without the added anxiety of what is happening to the patient who has just left the theatre, and we are sure that every nurse will agree that such an attitude on the part of the law is an unwarranted slur on the efficiency and responsibility of her profession.

▭

A DAY or so ago, as we were taking our constitutional around the park, it was suddenly borne in on us that Spring was almost at hand. The sun was shining, the newly-sown grass looked green and fresh, and there were even signs in the flower beds outside Esther indicating the beginning of that bitter annual struggle between the Works Department and several dozen assorted bulbs on the one hand, and frost, fog, smuts and that passionate and industrious excavation which forms so large a part of the life of the average Borough cat on the other.

Signs of Spring can be found also in the College; there is a general air of spring-cleaning, massive and intricate pieces of scaffolding have been erected in the gymnasium, there are ladders lying in all the darkest corners where one can most easily fall over them, and every morning as we wallow in the shower bath, sinister and mysterious figures come and go, each complete with cloth cap, cigarette and paint pot, and over all is the powerful and lingering smell of fresh paint.

Another sign of early Spring, which can be studied better, perhaps, in town than in the wilder recesses of the countryside, is the wood-note of the painter and whitewasher. This is almost unique among natural phenomena in that while the creature's song is not pleasant to the untrained ear, carried on, as only too often occurs, softly and insistently throughout the day, one can eventually pick out here and there movements suggestive of the theme-songs of some of the more popular talkies of last year. And, though the snow is falling through a thick, murky fog and the ground is thoroughly frost-bound, we have no hesitation in saying "Spring is here at last."

We, in common with one or two odd million readers of a certain morning paper, have been reading a leading article entitled, "The Osteopaths' Charter." This, as the paper carefully but inaccurately points out, "is a Bill to give the osteopath a legal status similar to that enjoyed by the orthodox medical profession." We also read that this Bill should pass (and who shall venture to stand before the lords of the Yellow Press?), and that it is to the public benefit that it should pass.

With the latter statement we are in partial agreement; if we must have osteopaths amongst us, let us try to ensure a certain standard of skill in them, and therefore let them be legalised. Once they have the sanction of the law, it is highly probable that their vast and profitable notoriety will disappear.

Which of us has not, in conversation with a layman, been told that, while consulting surgeons and orthopædicians are all very well in their way, the osteopath has some secret process, some happy knack by which all diseased joints can be cured once and for all by a manipulation, involving what is loved by the lay mind, an audible click as the offending tendon or bone is put in place. This eternal disparagement of the carefully and expensively-trained practitioner in favour of the quack, omnipotent and omniscient as soon as he has put up his plate and hung one or two luridly coloured charts of the human body on the walls of his waiting-room, is not only unfair and annoying to us as a profession, jealous of honour and ability, but is also indicative of the average man's incapacity for straight thinking. There is no doubt that some unqualified manipulators have something to teach the medical profession, but to regard them all as brilliant amateurs being bullied by a professional trade union is absurd. As long as the layman feels that he is doing something slightly illegal and at the same time helping the underdog in paying money to have his tuberculous joints manipulated, so long will the quack flourish in our midst. When he is placed on level grounds of competition, we hope that the quack element will die out from amongst the osteopaths, and the layman will realise that legalised osteopathy is identical with the therapeutic manipulation of the much abused orthopædician, a fact of which the lay press seems unaware.

Urinary Antiseptics

A Clinical Lecture by N. Mutch, Esq., M.D.

Gentlemen,—Urinary antiseptics are either applied locally through the urethra or reach the kidney indirectly by the blood. I propose to confine my remarks to the latter group.

The chemical and biological difficulties overcome in the production of a drug which is excreted unspoilt in the urine in antiseptic form are considerable, and one is apt to be dazzled by the brilliance of the achievement and expect too much from the invention. A correct perspective can be gained by considering the antiseptic treatment of infections in more accessible positions. In the nose and throat it is quite apparent that antiseptic treatment is only effective against bacteria, living as saprophytes in slough, exudate, secretions, blood clot, etc., and that their effect on the bacteria invading the underlying living cells is almost negligible. It would be unreasonable, therefore, to expect the excreted antiseptic to cure even an uncomplicated pyelitis by the simple process of lavage at an attenuated dilution. It should, however, be possible to employ it to prevent infection after the use of catheters or in blood clot, exudates, residual urine, slough from operations and other dead, inert matter, the living tissues being left to deal with the bacteria invading them by their own natural methods. With these ideas in mind let us examine the credentials of some of the more popular urinary antiseptics.

HEXAMINE
($N_4(CH_2)_6$)

A freely soluble white powder so non-irritant in character that it can be injected subcutaneously without pain or instilled into the bladder in concentrations up to 50 per cent. It is almost non-toxic and can be injected intravenously in large doses and in concentrations up to 25 per cent. without producing much constitutional disturbance. Absorption from the alimentary tract is rapid and dissemination wide. Some is found even in the aqueous humor of the eye and in the cerebro-spinal fluid. It is not broken up in the body or rendered inert by conjugation, and appears in the urine in the same form as that in which it was originally taken. It is not antiseptic itself, and the basis of its action is its property of yielding free formalin in an acid medium. The reaction takes place in accordance with the equation:—

$$6H.CHO + 4NH_3 \rightleftarrows N_4(CH_2)_6 + 6H_2O$$

The reaction is a balanced one. Its end point is determined by the hydrion concentration and the rate at which the balance is attained depends on the temperature. There are several important questions to be answered.

1. Does it escape destruction by the acid of the stomach?

It has been found that with the PH of gastric juice 100 per cent. is split up in six hours, but that only 60 per cent. is split in two hours. There is a time factor which, co-operating with the effect of food on hydrion concentration and the rapidity with which hexamine is absorbed, enables about 75 per cent. of the drug to escape into the blood and lymphatics unchanged.

2. Is free formalin liberated in the urine?

At a PH value corresponding with the maximum acidity of urine, 25 per cent. is split up in two hours and 35 per cent. in six hours, and, in point of fact, concentrations of free formalin have been registered in the urine varying from zero to 1 in 7,000. It should be remembered that formalin can exert an antiseptic action in concentrations as low as 1 in 40,000, although at that figure its antiseptic action is of a very feeble degree. It has been found that within a certain range the concentration of formalin actually found in the urine is determined more by the acidity of the urine than by the amount of hexamine taken, so that there is no point in pushing the dose beyond official limits.

3. Is free formalin liberated in the tissues?

At an acidity corresponding with that of normal blood, .4 per cent. hexamine is split up in four hours and with PH corresponding to asphyxial blood .8 per cent. is split up in the same time. The CO_2 tension and acidity are probably raised in the region of inflammatory tissue, so that it is quite conceivable that minute amounts of free formalin are actually liberated in such situations.

It is clear, then, that the bulk of hexamine taken by the mouth escapes destruction in the stomach; that free formalin appears in the urine, sometimes in antiseptic strength, and that there is a theoretical basis for the idea that minute amounts of free formalin are liberated in the tissues themselves in the neighbourhood of infected foci. The rational use of hexamine would appear to be: (1) in combination with acid sodium phosphate as a prophylactic to operate in the urine itself and prevent infection of residual urine, clot, slough, etc.; (2) in combination with alkalies for definite tissue infections of the urinary tract. In such cases the hexamine is acting in the tissues themselves, and the situation is not improved by irritating the mucous surface with free formalin which would be liberated in the urine if the alkali were omitted from the scheme. The kidney can be protected from ascending infection from the bladder in so far as that takes place by the urine itself and not by the submucous lymphatics, even if the urine in the bladder is strongly ammoniacal. It is well known that acid sodium phosphate cannot render such urine acid in the bladder, but it can maintain a high acidity in the non-infected urine in the renal pelvis.

HEXYL RESORCINOL

This substance is a strong antiseptic quite 50 times as strong as carbolic, and its action is not affected by the presence of protein. It is not cumulative, has a very low systemic toxicity and is excreted in the urine. There are several points of interest about it. Its antiseptic action is not only in proportion to its concentration, but also varies inversely with the surface tension of the solvent employed. The surface tension can be altered in a number of ways. A common method is to add glycerine, 30 per cent. of which augments the antiseptic value of hexylresorcinol solution 1 in 1,000 to a very high degree. The surface tension of urine increases with dilution. It is advisable, therefore, not to give the patient any excessive fluid during this treatment. It is also raised by alkalies so that the alkaline treatment should not be combined with this drug. There is no object in deliberately making the urine acid, because within the normal PH range of urine surface tension does not vary appreciably.

The local sedative action of alkalies, so important when hexamine is used, is not required, because hexylresorcinol itself acts as a mucosal sedative during excretion.

The clinical results hardly justify the high cost of this preparation, and, if given in large doses, a troublesome amount of bowel trouble may be set up. Some time ago Dr. Cuthbert Dukes made a series of critical observations on catheter cystitis following the tying-in of catheters after operation for carcinoma of the rectum. He found that hexyl resorcinol did not lessen the incidence of cystitis, neither did it shorten the duration or affect the course of the cystitis after it was once established.

The probable explanation of its failure under working conditions is that most of it is excreted in a conjugated form. This conjugated form is not an antiseptic, and the amount thus modified varies greatly in different individuals.

AMMONIUM BENZOATE

The ammonium radicle is converted into urea and the kidney excretes the benzoate radicle partly as hippuric acid, which raises the acidity of the urine slightly, but not to the degree so easily

obtainable by acid sodium phosphate. The rest is excreted as sodium benzoate, which in the dilution available exerts an extremely feeble antiseptic action. It never reaches germicidal strength.

BORIC ACID

Even a saturated solution of boric acid is not germicidal, and dilutions of greater than 1 in 200 do not possess any antiseptic value. Serious toxic effects often follow a dose of 2 grammes, so that it is impossible to secure antiseptic strengths of this drug in the urine.

SANDAL WOOD OIL

Tradition sanctions the use of this substance in the treatment of gonorrhœa. It does not appear in the urine in antiseptic strength, but in view of its clinical reputation it would seem probable that it exerts its beneficial effect in some other way, probably by providing just the right stimulus to provoke an optimum protective reaction in the tissues.

METHYLENE BLUE

Even dilutions of 1 in 150,000 are antiseptic. The toxicity is low, doses up to 2 grammes being tolerated without difficulty. It is excreted in the urine, and much has been expected of it. The unsatisfactory clinical results are adequately explained by its method of excretion, most of it appearing as the leuco compound of methylene blue or methylene azur, both of which are inert substances devoid of antiseptic properties.

EUFLAVINE

The flavine series of dyes are extremely potent antiseptics. These properties are actually increased by the presence of serum, and the drugs do not inhibit phagocytosis or tissue repair. After injection they appear in good concentration in the urine. For intravenous injection euflavine is the most suitable of the series because its solutions are quite neutral. In solution, as much as 100 c.c. at a dilution of 1 in 200 can be given with comparative safety. It is impossible, however, to obtain a continuous effect in this way.

MERCUROCHROME

This red dye of the phthalein series contains about 25 per cent. of mercury. In solutions of 1 in 1,000 it is an excellent antiseptic when applied locally. It is non-irritant, it does not precipitate albumin and the stain which it leaves testifies to its penetration of the tissues. 10 c.c. of $\frac{1}{2}$ per cent. solution can be given intravenously, but severe reactions are commonly produced. It is rapidly excreted in the bile and urine, but it does not appear in antiseptic strengths in either situation. It would appear to produce its effect by colloid shock and fall into the group of drugs used for non-specific reactive therapy.

The results obtained with all these drugs are admittedly disappointing, because too much has been expected of them. The confusion arises from an assumption that genito-urinary infections call for special drugs. The search for a substance which is excreted in an effectively antiseptic concentration should eventually prove valuable in preventing infection produced by catheters or in residual urine, blood clot, new growth, operation slough and secondary infection of tuberculous kidneys and bladders, but it is not likely to assist in dealing with established tissue infection. The problem in the urinary tract is identical with that of deep infection in any part, and the drug treatment continues to be unsatisfactory. We still lack a drug which can approach the bacteria by the blood-stream and destroy them by its local action. Its excretion into the urine is of no importance in this connection. Such a drug or one which can stimulate the general immunity mechanism is urgently needed. For the present, reliance must still be placed on indirect methods, antiseptics being assigned their appropriate place in the background. The treatment of bacillus coli pyelo-cystitis offers a useful example of the indirect method. Mechanical rest for kidney and bladder is secured by confining the patient to bed. Adverse vaso-motor reflexes are avoided by protecting the loins and abdomen from chill. Alkalies diminish pain and frequency and spare the patient the exhaustion of persistent discomfort. Hyoscyamus and atropine reduce plain muscle spasm, itself inimical to recovery. A simple non-putrefactive diet, efficient evacuation, intestinal antiseptics and adsorbents safeguard him from the depressant effect of intestinal toxæmia. Small doses of autogenous vaccine, prepared from the bacillus coli of the fæces as well as from those in the urine, provoke leucocytosis and increase protective antibodies. Bigger doses are used in the non-pyrexial stages. Vitamines A and D, calcium and ultra-violet light hasten convalescence, and iron should always be given when there is any secondary anæmia.

This class of treatment is far superior to the somewhat childish scheme of trying to eradicate the infection by washing the mucosa with urine charged with antiseptic drugs at dubious concentrations. It does not cure quickly, but in the long run its effects are excellent.

Some Work at Barnes Hospital

ANÆSTHETICS

I THINK most people are aware of the big difference in the practice of anæsthesia that exists in the United States. Medical men who devote their whole time to anæsthetics are few and far between, and in their place are found nurses who receive special training in this work. I have mentioned the short period of time (18 months) allotted for clinical work before a student graduates, and it is felt that there are so many things to be done in this time that the teaching of anæsthetics is something that can be readily omitted. Thus any experience in their administration can only be acquired during the tenure of Interneships, and, of course, scarcely any is acquired even then. It follows that the American doctor is by no means comparable to his English colleague in this work. The nurses, who do almost everything in hospital, are good and do the work well; there are instructors and pupils in much the same way as our staff anæsthetists and anæsthetic clerks.

The effect of all this on the status of anæsthetists is obvious; the giving of an anæsthetic is considered of minor importance, and fees are of corresponding proportion. A private patient in hospital here pays a standard fee of 5 dollars. Anæsthetic fees on a scale such as we know them do not exist.

Nitrous oxide is used much more than we use it. The usual routine for everything is gas and oxygen, supplemented by ether when necessary. I have not seen chloroform or ethyl-chloride used or chloroform and ether mixtures. Intratracheal anæsthetics are rarely used except in the department of plastic surgery; here the surgeon passes the catheter himself by touch. For chest work we find an intratracheal anæsthetic is almost never necessary; even if the pleura is opened sufficient positive pressure can be obtained by a close-fitting gas mask.

The much wider use of gas and oxygen in place of chloroform and ether is a practice which is worthy of the most careful consideration. The big difficulty in England lies, I suppose, in the necessity for training students to use an anæsthetic which they can use conveniently in practice afterwards. One can hardly expect every general practitioner to carry round a gas and oxygen apparatus.

I was particularly interested in a comparison between the consumption of the well-known McKesson apparatus and other makes. Thus in the period July to October, 1930, three separate McKesson machines averaged about 215 gallons of nitrous oxide and oxygen per hour. A similar type of apparatus called the "Metric" during the same period averaged 60 gallons per hour, and the "Heidbrink" averaged 100 gallons per hour. Now such striking differences in the running costs need considering; the senior anæsthetist tells me she much prefers the "Metric" to the "McKesson," and, in addition, its hourly consumption is almost a quarter. It is rather unusual to be able to obtain such comparative figures as these, for not many institutions retain three separate types of expensive apparatus in use.

At all operations there is a much more complex "operation return" than we use. In addition to the description of anæsthetic used, a graph is plotted of pulse-rate and blood-pressure. For this latter a sphygmomanometer is strapped to the arm and in the bandage holding it in place is incorporated a flat stethoscope "chest-piece." A long rubber connection allows the anæsthetist to listen to the brachial artery easily and comfortably whenever necessary. On the same operation return is typed an account of the operation dictated by the surgeon himself immediately after operating. This sheet goes in with the case report.

Avertin is not being used here apart from the department of neuro-surgery, which uses it in some cases and considers it a great boon. The reason for its unpopularity is a feeling that it is unnecessarily dangerous; this feeling is partly based on its close chemical relationship to chloroform. When I first arrived, however, sodium amytal was being used instead, and I think a few words about it are not out of place.

Sodium amytal is a barbituric acid derivative, and has been used as a general anæsthetic in experimental laboratory work since 1921. It is important to point out in this connection that to secure adequate surgical anæsthesia in animals it is necessary to inject approximately 50 per cent. of the fatal dose. Up till lately it has not been possible to secure it in a sufficiently stable form for intravenous use in man, although it is on the general market as an hypnotic and analgesic to be administered by mouth.

During the last year it has been issued in a form suitable for intravenous administration; as it has not yet been accepted officially, it is not on the general market, and so is not procurable except for clinical trial. For this reason, I suppose, it has not yet been marketed in England. An article was published in the *B.M.J.* in December following a discussion on its use at the Winnipeg meeting of the B.M.A., and I have no doubt that it will shortly begin to creep into use.

At Barnes it has been used in 300 instances, and has given excellent results as a pre-anæsthetic sedative, especially in cases such as toxic goitre, where a sedative of this type is an advantage. The solution is made up immediately before injection and is given very slowly intravenously. The dose varies from 0.6 to 1.0 grm., and, given in a 10 per cent. solution, it is injected at a rate of 1 c.c. per minute. Unconsciousness comes on very quickly, and its onset is a useful guide to the dosage needed as the administration can be stopped when this supervenes. Frequent blood-pressure readings are necessary during this time.

As with all these supplements to the usual agents for producing general anæsthesia, it is essential to stress that they are not intended to replace general anæsthetics. So many people imagine they are intended as an alternative to inhalation anæsthetics and attempt to use them as the sole agent in producing surgical anæsthesia. This is particularly dangerous with sodium amytal, for, although an occasional case is deeply anæsthetised with a 1-gramme dose, it is highly dangerous to attempt to increase the amount in order to procure surgical anæsthesia.

Altogether 96,000 samples have been distributed for clinical trial in the United States, and, until recently, no complaints of untoward happenings had reached the makers. However, a case of such importance occurred just after I arrived that I feel it would be an advantage to give an account of it, especially as I was a personal witness. Dr. Graham has very kindly allowed me to mention it.

The patient was a doctor's wife, aged about 60 years, and was to be operated on for an infective condition of her costal cartilages; she had had several severe abdominal operations during recent years, but this was to be a simple procedure. As she was nervous a pre-anæsthetic injection of sodium amytal was decided upon, and was administed at 8 a.m. in her room. The dose given was absurdly small, 0.2 grm. (the usual dose being 0.6 grm.), and it was administered by the Surgical Resident in the presence of Dr. Graham. After this amount had been injected the patient became drowsy, and consequently no more was given, as it was only intended to allay her apprehension. The blood-pressure was taken during the injection and showed no change.

She arrived at the operating theatre at about 9.15, and was sufficiently conscious to recognise a voice and to speak. Nitrous oxide and oxygen was commenced and given for about *three minutes*. It was then noticed that her colour was ashen grey, and pure oxygen was administered. The blood-pressure at this moment was as before (180 mms. Hg.). In spite of the administration of oxygen from the gas apparatus her colour continued unsatisfactory for some minutes and an ominous tracheal rattle could be clearly heard by those standing by. A little later, however, she rallied somewhat, and was returned to her room with a good colour and fair pulse. The operation had not been commenced. It is to be noted, however, that, although she was talking before the trivial amount of gas and oxygen was administered, she was still deeply unconscious although oxygen alone had been given for some time. Some 1 to 1½ hours later (10.30 a.m.) she rather suddenly became worse and died. A post-mortem examination was made at noon, and the sole finding was a moderate œdema of the lungs with some general arterio-sclerosis.

If one stops and considers, this is seen to be a very exceptional and important case. The patient had been resting in hospital for one week before operation, and during this time an electro-cardiogram had been taken and proved to be normal. The conditions accompanying the administration were not confused by other issues. Thus it was given under careful supervision, no other pre-medication such as morphia had been used, and, moreover, the amount of nitrous oxide given was negligible. To ascribe the death to it would be ridiculous; it was given by an expert, was stopped almost at once, the patient rallied soon after, and eventually died more than an hour later. This is nothing like a nitrous-oxide death. No operative procedure had been carried out. Post-mortem examination revealed nothing but the pulmonary œdema which, from the literature, is an almost constant accompaniment of deaths from the barbituric acid derivatives. The conclusion is irresistible that death was due to the drug, but a difficulty at once presents itself in the smallness of the amount administered—only 0.3 grm. One might say that the patient had an idiosyncrasy, but, unfortunately for this, she had had exactly the same dose by mouth three nights before and it had no effect on her at all.

The consternation aroused by this case was so great that a general conference was called to inquire into it, and various experts, including representatives of the manufacturing company, were present and took part in the discussion. Although the fact was brought out that 96,000 samples had been already distributed with no complaints, and although it is clear that death from such a small dose is somewhat peculiar, nobody has yet had the courage to use the drug again, and I fear that it will be many a long day before it is used once more in St. Louis. It is being used very widely in the States, and the Mayo Clinic recently published a report of its use in the conduct of labour.

SOME SPECIAL DEPARTMENTS

One distinct difference between hospital practice in England and America is the more rigid division into special departments. Specialism is carried somewhat further, and a large amount of work is taken from general surgery to be concentrated in these departments. Thus genito-urinary diseases in England are still part of a general surgeon's work and many cases are found in general wards. Here they are much more rigidly transferred to the appropriate department.

Of particular interest is the department of plastic surgery of which Dr. Blair is the chief. Dr. Blair's skill and reputation attract many patients, and every day of the week three or four operations are performed; a very large amount of work is got through. In addition to the more special plastic work, much facial and oral surgery is transferred to this department which is usually done by general surgeons in England. Thus most carcinomata of the mouth, tongue and face are dealt with by them. The work is so specialised that it is out of the question to attempt to describe it; one must be content with expressing admiration for the beautiful work they do.

NEURO-SURGERY

In this department also one is impressed with the amount of work got through. Every day there are one or two operations. Dr. Sachs is head of the department, and, in addition, there is an assistant surgeon, Dr. Klemme; of course, there are also the several other members making up a complete unit. Dr. Sachs is a very fine operator, and the team work is outstanding. I think a brief outline of their technique is worth giving.

Ventriculography is used extensively, and usually is followed immediately by craniotomy.

The head is not prepared until the patient arrives at the anæsthetic room; I was interested to see an electric hair-clipper used, which makes a somewhat irksome task more pleasant both for patient and doctor. By the patient's bearing during this preparation it is decided whether anything more than a local anæsthetic is indicated. In only a small percentage of cases is this found necessary. Avertin is sometimes used, especially in children; occasionally ether may be necessary later in the operation.

I have seen a man have a large bone flap turned down and the frontal lobe excised under local anæsthesia aided by nothing more than $\frac{1}{8}$ grain of morphia before and a further $\frac{1}{8}$ grain during the operation. Even when only local infiltration is used an anæsthetist is constantly watching the patient. The table is very conveniently arranged so that she is sitting comfortably under the towels; every 15 minutes pulse and blood-pressure readings are passed out and recorded on a slate on the wall.

The periphery of the scalp is infiltrated with novocaine and then, *before the towels are put on*, the skin incision is marked out lightly with a scalpel. I think this is an important step, and does away with the danger of dividing important structures unwittingly.

Dr. Sachs then towels the head himself, and it is an education in itself to watch him do it. Smaller towels are actually fixed to the scalp by safety-pins passed through the infiltrated zone. As this zone is, to begin with, raised and œdematous it is an easy manœuvre and very effective. The small towels are covered by a large head towel with an oval centre hole.

Hæmorrhage from the scalp is controlled by finger pressure on each side of the wound by assistants' fingers; any escape is rapidly sucked up by the sucker which another assistant has. (Every American theatre, by the way, has a sucker in constant readiness.) Mayo-Ochsner forceps are then clamped on the deeper layers of the scalp and prevent further loss. After the flap is cut there are, of course, several dozen forceps, but these are easily controlled by a tape passed through the handles so that they are held aside in bunches. The bone flap is then cut by means of an electric burr, which almost penetrates the skull, a hand burr being used to finish it; these drill holes are then joined by a Gigli saw. The flap is cut very rapidly.

Before the dura is opened any vessels to be divided are first sealed by diathermy, and all work in the brain is done with a cutting or coagulating diathermy current. The great advance made possible by the use of the diathermy current in cranial surgery is one of the things that lead one to question Lord Moynihan's oft-repeated assertion that we have reached the limit of perfection of surgical technique. By the use of this apparatus and the suction machine it is surprising how clear the operating field can be kept of blood, and, indeed, how little blood is lost.

As an instance of the great advances made possible by diathermy, I can cite a case of hæmangioma of the cortex causing pressure phenomena over the motor area. When the bone flap was turned down, to describe the hæmorrhage as formidable would be putting it mildly; the huge vessels just poured blood. With great skill this was controlled, and by slow, careful work the whole area of dilated vessels (some bigger than the radial artery) was coagulated. Such an achievement would have been impossible by any other means. I saw this same patient demon-

strated at a conference six days later; he was sitting up and smiling, and it was difficult to believe that he had undergone any operation at all recently, let alone a craniotomy.

Sewing up is quite a procedure. Silk is used entirely (silk is very popular in America), and a complete set of deep sutures are first inserted, taking up the deeper layers of the scalp, thus controlling hæmorrhage and allowing removal of the artery forceps. Superficial skin stitches are then inserted (silk) and these latter are removed in 24 hours. This is done in order to minimise deformity from the scar, since many of the scars are carried right across the forehead. A drain is left in one of the drill holes for 24 hours.

Another useful point I noticed was the giving of any necessary intravenous solutions during operation (*e.g.*, hypertonic solutions) into the leg veins so that it could be done without disturbing the operating field in any way.

The treatment of septic meningitis by active surgical intervention has been prosecuted enthusiastically here whenever possible, and the following points were brought out at a discussion recently at a meeting of the Neurological Surgeons of America.

In all, 42 cases have been operated on, and of these seven have recovered. (Another surgeon gave his figures as eight recoveries out of 35.) A low laminectomy is generally performed, and Sachs uses the third lumbar vertebra, thus being well below the cord, and he affirms there is less danger of the drainage hole being blocked; the hole in the arachnoid must be at least 1 inch long, else otherwise it may get plugged by nerve roots. A drain of gutta-percha tubing is stitched in (passing about $\frac{1}{4}$ inch inside dura); the dura is left open at each end and the muscles are sewn loosely. Drainage is kept up for two to three weeks. Some surgeons have advocated the mid-dorsal region for the point of drainage as it is more accessible and the cord is smaller.

The main point is early drainage. Of the cases that survived, the average time from onset to operation was $4\frac{1}{4}$ hours. Of the ones that died the time varied from 2 hours to 11 days. It is, of course, essential also to get at the focus and treat it. Thus in a septicæmic meningitis drainage by laminectomy is useless.

In addition to drainage, an essential point in treatment is to give plenty of fluids; even as much as 8, 10, or more pints in the 24 hours. It has been suggested that pituitrin (1 c.c. every 3-4 hours) might be given in order to shut down the kidney secretion and increase the flow of cerebro-spinal fluid.

The laminectomy may be supplemented by cistern drainage; some cases have been treated by cistern drainage alone. Sachs says that, although some cases recover after repeated lumbar puncture, one can never get good drainage by that method. Moreover, between the tappings the pressure rises and the pus rises also; by examining a brain post-mortem one can easily see the way it spreads up the Sylvian fissures to the vertex. Sachs says he has performed a cistern drainage immediately after a lumbar puncture and found a large quantity of fluid that had not been drained off by the lumbar puncture.

CHOLECYSTOGRAPHY

No account of work at Barnes Hospital could possibly be complete without mention of cholecystography, since this is its place of origin. The general features of this invaluable aid to diagnosis are widely known and appreciated, but there are several points of interest in connection with it which are not so generally known. Certainly every small point occurring in its use here is worth knowing about, for naturally the study of all its phases has been much more intense and exact. In addition, I know full well that there is still a certain amount of hesitancy in its general use, probably because of supposed dangers in the intravenous route and the manifest drawbacks of the oral route. However, I hope to be able to dispel any lurking doubts that may exist in anybody's mind with regard to its safety, and also to spread a little added enthusiasm in its use.

The intravenous route is used whenever possible; if the veins are small or the patient objects to puncture, the dye is given by mouth; but certainly in cases where the result of the test is going to be of especial importance injection of the dye is urged. The salt used for this is not sodium tetraiodophenolphthalein, but an isomer sodium phenoltetraiodophthalein. The latter is superior to sodium tetraiodophenolphthalein for various reasons: firstly, because of its ability to stain the blood serum, thereby allowing readings to be made on the determination of hepatic function; secondly, because of the increased rapidity of excretion by the liver; and thirdly, because a smaller dose is required. Its crystals are dark violet and give a violet solution; the isomer is a light blue. The only disadvantage of sodium phenoltetraiodophthalein is the slightly greater price; in all other features it is considered to be superior. It is, of course, not necessary to use it for oral administration, and for this method the other salt is always used. I will mention the hepatic function test later.

It has been found that the risk of reactions and certainly of severe reactions is largely prevented by certain procedures. To begin with, the dye is carefully made up by the same person (2.5 grm. are dissolved in 30 c.c. of distilled water, sealed in a glass ampoule and sterilised by heat), and the injection is always given by the same person. This latter is undoubtedly of great advantage over indiscriminate injection of the dye by frequently changing house officers. All injections for the last two years have been made by one man (an assistant radiologist).

The gravity method of injection is far superior to an ordinary needle and syringe. A tube and funnel with needle attachment for giving intravenous saline in the ordinary way is used. The needle is introduced into a vein and then, while the saline is running in slowly, the fine needle of the syringe containing the dye is inserted into the rubber tube and the dye is slowly injected into the stream of saline solution. The injection is given slowly and takes some 15 to 20 minutes, never less than 10 minutes, and during this time about 200 c.c. of saline are used. When all the dye is injected the vein is washed clear by running the saline for a short while longer. It is almost impossible to get leakage into the soft tissues of the arm if this method is used.

The dose is, of course, worked out from the body weight and the amount needed for a patient weighing 137 lb. is 2.5 grm. The dose need never exceed this amount, although one must not give so much to a patient who weighs less than 137 lb. The appropriate dose for a lighter patient is read off from a very convenient table which gives the number of c.c. of the above standard solution (2.5 grms. in 30 c.c.) which is required.

The injections are given at 8 a.m. with the omission of breakfast; films are taken at 4, 8 and 24 hours. Lunch is confined to carbohydrates or to liquids free from fats; better shadows are obtained if lunch is omitted entirely. If observations on the reaction of the gall-bladder to a fat meal are required, the solution is injected the evening before (8 or 9 p.m.), and a fat meal is given at 10 a.m. the following day, immediately after the first X-ray is taken. When used by mouth, the dye is given overnight in the usual manner.

For the X-ray exposure, large films are not used, as they mean some sacrifice of detail; smaller films are used with a smaller diaphragm.

As in most people's minds the objection to the use of the dye lies in the fear of toxic reactions, I shall deal more fully with this matter.

The avoidance of phlebitis and periphlebitis I have mentioned. The safety dose I have mentioned. Once more I must stress the advantages of having one person give all the injections rather than many different persons, some of whom will not appreciate the very great importance of giving the solution slowly. In the last two years, while one man has been assigned the task only one serious reaction has occurred, and this was a typical allergic response to the dye. After the patient had received half the dose he became very dyspnœic, his mucous membranes became swollen and intensely red, and he developed a severe generalised urticaria. Adrenalin was given and relieved the symptoms greatly; no more dye was given. If the whole dose had been given, especially if it had been given quickly, the chances are this patient would have died.

A very important point is to make the patient rest lying down for at least half an hour after the injection.

Reaction symptoms may be nausea, vomiting, vertigo, headache, weakness or urticaria. The most alarming type, but the least common, is that which Graham has described as "circulatory shock"; the heart-beat is not disturbed, but the blood-pressure is very low and the patient is collapsed. These cases respond well to adrenalin, and a physician in St. Louis who has himself used the dye in over 2,000 cases, tells me he expects this reaction in two cases out of a hundred and he is never worried by it; the patient always recovers in a short while.

Graham has recorded in his recent book on "Surgical Diagnosis" that he has now personal knowledge of 15,000 cases in which the dye has been given intravenously without a single death. Three deaths, however, have been reported which need discussing:—

1. A case reported from Birmingham in which a dose *nearly twice the maximum* safe dose was given.

2. In Germany a man was given an intravenous injection within 24 hours of an oral administration; seven days later he died from intense colitis. The situation was, however, complicated by the fact that post-mortem suggested poisoning by a heavy metal, and actually 30 m.grm. of mercury were recovered from the abdominal organs.

3. A fatality occurred at Barnes as a result of an attempt to determine, if possible, whether or not solutions could be kept sealed up in glass ampoules for several months and then injected safely. Some solutions were prepared and sealed in brown glass ampoules. At monthly intervals some was tested on animals and then used on humans. Material which had been kept in this way for five months had been given without reactions to patients. A solution seven months

old was injected into a very obese coloured woman of 59 years. This was given at a time when the gravity method had not been adopted, and when it was not being given by one person only. About half-way through the patient complained of feeling "light-headed" and said her heart "felt queer." In a few seconds she became unconscious, her respirations then failed, and, despite all attempts to revive her, she died.

Graham says: "The fact still remains that no death has followed the use of properly performed intravenous cholecystography in an experience of 15,000 cases. Even if an occasional death should occur when all precautions are used, as perhaps it will, intravenous cholecystography seems to be far safer and probably as accurate diagnostically as exploratory laparotomy for questionable lesions of the gall-bladder."

In the last 1,742 cases analysis shows reactions of some sort occurred in 32.7 per cent.; almost all of these have been trivial. Reactions are more liable to occur, by the way, if the oral route is used instead of the injection.

As a test for liver function a sample of serum is withdrawn half an hour after injection and the colour from the retained dye is compared with standard solutions. In this way it is estimated whether there is delayed excretion, and experience in this has shown the test is of great value in assessing the operability of cases which show an increased retention of dye.

Cholecystography is used almost as a routine in cases requiring gastro-intestinal investigation. One cannot but feel that this is the only logical thing to do; if the stomach and duodenum need investigating by an opaque meal, then surely one should investigate the gall-bladder at the same time when a method is ready to hand.

A rather disconcerting case occurred here only last week. A young woman had had severe attacks of upper abdominal pain associated with vomiting; these had been going on for some time, and had caused her to be away from work so often that her employer insisted she did something about it. Intravenous cholecystography revealed no gall-bladder shadow, and the injection was repeated later with a similar negative result. At operation it was found that no gall-bladder was present! The liver presented some 12 to 15 lobes, and passing from it were quite a leash of bile-ducts; the only representative of the gall-bladder was a tiny fibrous cord. There were several other congenital abnormalities in the abdomen.

While on the subject of intravenous injections I should like to mention the precautions taken here to prevent rigors following intravenous injection of saline or glucose. As anyone knows who has used these at all frequently, the chills are difficult to avoid and are very distressing. Since the adoption of three constants in the administration some six months ago, no case of rigor has occurred:—

1. The water used in making up the saline or glucose is treble-distilled.

2. Forty-five minutes is taken to give 500 c.c. of saline; this is put forward as the most important element; thus if 20 or 30 minutes only are taken, then a rigor is liable to follow. Unfortunately, this entails a houseman sitting by the bed to hold the needle for 45 minutes.

3. The temperature is kept constant; the rubber tube is carried through a water bath at 110°.

R. C. B.

The Residents' Play

By a Ward-Maid

THE Residents' Play was a roaring success. Mr. E. R. Boland's clever and exciting plot was very thoroughly relieved throughout by a mass of subtle and amusing incident. The lyrics —written by Messrs. S. I. Abrahams and Boland— frequently soared to the highest peaks of topical ingenuity or flowed gracefully into the green valleys of romance and fine sentiment, bringing at such times tears to the eyes of even the least impressionable of ward-maids. The music of Mr. Oliver Ive at one moment put Chopin cruelly in the shade, and in several places would have made Bach himself green with envy—such infectious melodies, such ragging rhythms that some of us were forced to forget our tiaras and our dinner jackets and join in the choruses or beat time with our feet. And the play, the lyrics and the music —each in itself a work of art—were further so well balanced together and suited to each other that the final effect excelled the bounds of even Wagner's most optimistic (and certainly unrealised) dreams. And this—on a stage and an exchequer ridiculously inadequate and with a caste in the main quite new to the job—Mr. E. T. Conybeare beautifully produced. How he succeeded one cannot tell; but many of the actors gave you the impression they had anyhow been born, and would probably be buried, on the stage. His settings were always adequate, and the changes were as smooth and rapid as on any modern stage. In fact, some of the audience in the gallery felt that the intervals were, perhaps, too short.

"Just put a Penny in the Slot."

Sister Arabee (Mr. Lees) Dr. Polson (Mr. Wheeler)

ACT I.—The Subway

The play opens with what might almost be called a curtain-raiser—delightfully amusing but, at least on the face of it, quite unconnected with the general theme. After a fanfare of nurses—four gorgeous damsels played by Messrs. Mellon, Bigby, Ferguson and Whitwell—Dr. Polson enters with a new and alarmingly complicated machine, wheels within wheels, tubes leading out of tubes. Mr. Wheeler played Dr. Polson's part well; infinitely enthusiastic and a little vague, one saw in him at once the personification of sciencific medicine, as he tries rather helplessly to explain the apparatus to Sister Arabee. Mr. Lees as Arabee was charmingly ingenuous, yet not entirely "unknowing" with the men and always encouraging with her "How fascinating Science is; such a dear little machine!" Dr. Polson then sang the praises of his apparatus to an excellent tune while Arabee, carried away by the rhythm of the refrain, trips a charmingly un-sisterlike measure.

PENNY IN THE SLOT

The bad old age of ignorance in medicine is ended.
The antiquated "bedside manner" days will soon be mended.
Clinicians all must shed their old unscientific guessing,
And welcome in with open arms this unexampled blessing.
For medicine (too long an Art) is now at last a Science,
And accuracy is assured by every known appliance.
Just put a penny, put a penny in the slot,
And you will be attended to and treated on the spot.

Now once upon a time we had no aids to diagnosis,
Could not distinguish phthisis from a case of silicosis;
But now we've got the X-rays and a host of other benefits.
If we've a hundred tests we'll try them all and see if any fits.

Oh! blessings on the microscope and hæmoglobinometer!
Oh! snaky duodenal tube, superb sphygmomanometer!
Just put a penny, etc.

We subject your secretions to a chemical analysis,
We tell your blood bicarbonate without remorse or fallacies.
In exophthalmic goitre drop the tactus eruditus;
If we are wrong the basal metabolic rate'll right us.
And think of the advantages we gather from the Wassermann;
No longer need a physical examination boss a man!
Just put a penny, etc.

And in the way of treatment we have made some great advances,
You mustn't medicate by mouth in any circumstances.
And ordinary foods I grieve to say are not the best meals;
The only things the stomach really tolerates are test meals.
So give your drugs by methods subcutaneous, intramuscular,
Or intravenous—very soon, no doubt, intracorpuscular!
Just put a penny, etc.

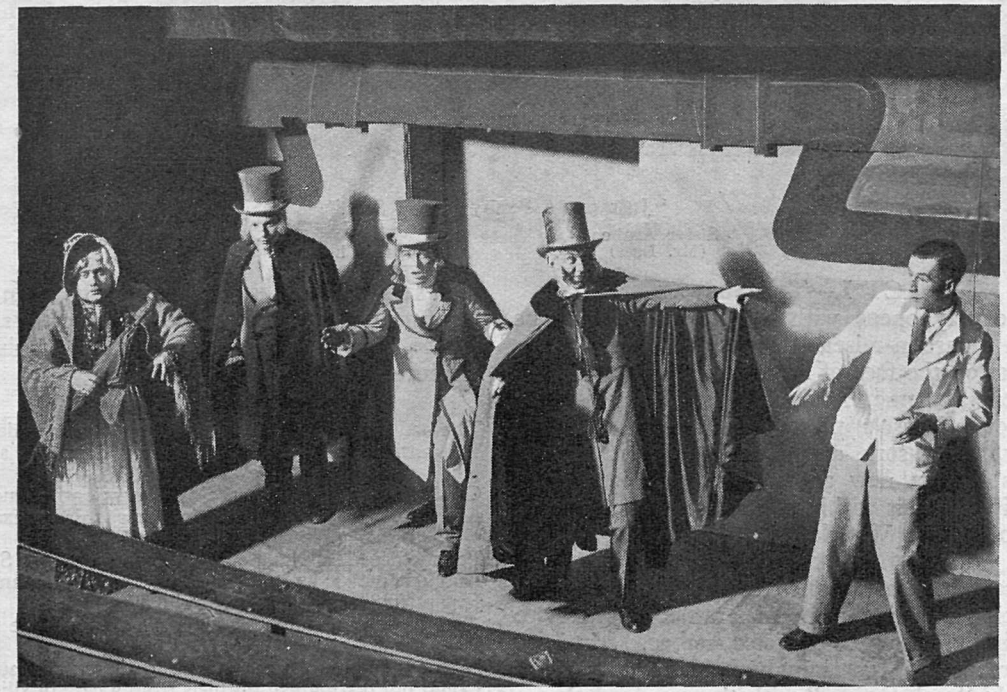
For any kind of ailment it's an instrument that's needed;
The poor physician's had his day and should be superseded.
You've heard a lot in bygone days of clinical acumen,
But science is divine and we admit to err is human.
So give yourself for treatment to some scientific terror;
Eliminate the doctor, for he introduces error.
Just put a penny, etc.

Is Dr. Hurst as perfect as a count of blood-corpuscles?
Can Dr. Symonds register the K.C.C. of muscles?
Geoff. Marshall can't show cavities as neatly as a skiagram,
And I admit myself to be inferior to a diagram.
So scrap the old physicians, turn the scientific light on,
And get your diagnoses on the Palace Pier at Brighton.
Just put a penny, etc.

Now when we've ushered in the reign of automatic medicine
The patient needn't get alarmed whatever ward his bed is in.
He'll not be made to groan by Dr. You-know-who's vagaries.
He'll be treated by a Robot whose expression never varies,
A sort of walking stethescope who never shouts or curses;
Who never damns the dressers or looks daggers at the nurses.
Just put a penny, put a penny in the slot,
And you will be attended to and treated on the spot.

Dr. Polson here leaves "urgently" for Clinical, and is not seen again. One wonders, perhaps, why he was ever brought on; but I feel one is meant to picture him remaining engrossed with his tubes in Clinical, a true scientist, oblivious of the anarchy and constitutional upheavals that were threatening the hospital.

The main theme now starts with the entrance of our heroine, Nurse Hyoscine Hellebore, who is, if possible, more beautiful than any of her colleagues. This part had been literally jumped into—owing to the unfortunate eleventh-hour indisposition of Mr. Croot—brilliantly by Mr. Conybeare. Hyoscine is loved by, and loves



"Take care, beware, the Ghosts will get you!"

Mrs. Sarah Gamp (Mr. Shone) — Dr. Bright (Mr. Southwell) — Dr. Gull (Mr. Payne) — Dr. Addison (Mr. Bishop) — Billy (Mr. Robson)

passionately, a house surgeon, Billy Carruthers, who at this moment comes in looking for her. This part, which must have been extremely difficult to play, was carried off by Mr. Robson with consummate ease. There had been a serious misunderstanding: Billy had been caught by Arabee ingenuously feeding milk to a kitten at 2 a.m. in the Nurses' Home, and the distinctly less ingenuous Arabee was having him sacked for it. The disconcerting doubts that had quite naturally arisen in Hyoscine's mind over these various points are, however, satisfactorily cleared up in their singing of the duet, "Dearest, it doesn't seem right."

Exit Hyoscine—thunder and lightning—and the Ghosts of Guy's appear: Mr. Bishop as Dr. Addison, Mr. Southwell as Dr. Bright, Mr. Payne as Dr. Gull, and Mr. Shone as Mrs. Sarah Gamp. The new Superintendent, Mr. Muscarine of Moscow, they announce, has been appointed by the Bolshevik Government with supreme authority in the hospital; and it is their intention that Billy shall rid Guy's of this menace,—while outwardly doing his bidding, he is ultimately to destroy him. Billy, who at first is a bit apprehensive about destroying superintendents, is prevailed upon by threats to comply with the Ghosts' wishes, and he is warned that he must tell no one his secret.

ACT II

The first scene is laid in the "Ship and Shovel." Four dressers—Messrs. Popplewell, Smallshaw, Hollis and Wheeler—are discovered drinking.

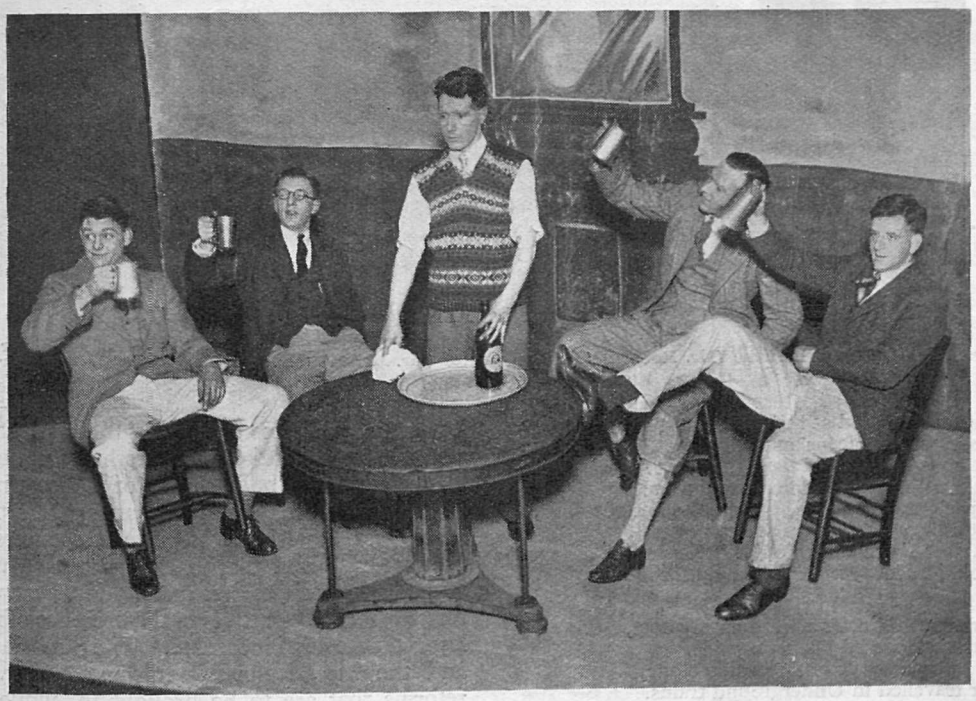
DRINKING SONG

Let Wise Men who're clever and nimble of wit
Swill down their Cocoa and Milk in the Spit.
They may make their fortune by all their bright thinking,
But we won't feel hungry so long as we're drinking.
So whether you're rolling, or whether you're stony,
Got only one car or dozens like Cony,
Come here and join us if you'll take our tip,
You'll drown all your sorrows with beer in the "Ship."
Fol lol lol lol, etc.

A moment later Billy enters and enumerates in the following song the many dangers that threaten in the life of a Guy's student:—

WHAT GUY'S DID FOR ME

When I came to Guy's I was such a nice boy,
So bashful and pure and discreet.
My daddy's delight and my mother's one joy,
The nicest young man you could meet.
I sometimes said "dash," but I never said "damn,"
I never went out on the spree,
But now you shall hear what a devil I am,
Look, just look, what Guy's did for me!



"So drown all your sorrows in beer in the 'Ship.'"

Argyrol (Mr. Popplewell) Agarol (Mr. Wheeler) Cyril (Mr. Nash) Pinol (Mr. Hollis) Gomenol (Mr. Smallshaw)

When I came to Guy's I was sober and staid,
A cocktail would cause me to shrink.
I'd never had more than a still lemonade
Till I fell a victim to drink.
The " Ship," and the dressers, and William, I fear,
Have left me no longer T.T.
Each week I consume several barrels of beer ;
Look, just look, what Guy's did for me !

My mother she warned me, " Beware of the nurse,
For you are her natural prey ;
Don't fall into winking, or kissing, or worse,
Or there'll be the devil to pay."
But now I've a flair for a feminine face,
I'm tempted—but never to flee ;
The Sisters all say I'm a perfect disgrace—
Look, just look, what Guy's did for me !

Now cards I had placed among wicked pursuits,
And poker would cause me to blush ;
I thought that " two pairs " meant a couple of fruits,
And a douche was the same as a flush.
But now I can make a grand slam, or revoke,
Or find you the lady of three,
Which shows you I must be a desperate bloke ;
Look, just look, what Guy's did for me.

Now all you young fellows my moral observe,
If you would be prudent and wise,
And from the straight pathway of virtue not swerve,
You'd better not study at Guy's.
And if strong temptation should fall in your way,
To your conscience just say " P.R.D."
Remember the things I have ventured to say,
Look, just look, what Guy's did for me !

" The Man must have his Stomach out."

Research Workers (Messrs. Payne, Whitwell, Shone and Southwell) — Billy (Mr. Robson) — Hyoscine (Mr. Conybeare) — Patience (Mr. Mellon) — Prurigo (Mr. Ferguson) — Priscilla (Mr. Bigby) — Sister Arabee (Mr. Lees)

The Patient (Mr. Nash) — Mr. Lowlands (Mr. Bishop) — Mr. Muscarine (Mr. Stewart Harrison)

I never was good at the orthodox sports,
I used to lack biceps and calf,
But now (if you read the newspaper reports)
I'm a dashing and brilliant scrum-half.
At parlour games, too, I was quite out of things,
At tiddleywinks always at sea.
But now I'm a champion at " Kissin' the strings " ;
Look, just look, what Guy's did for me !

I never could utter a word on my own,
With fashions i'd taken no pains.
I'd never been down Piccadilly alone,
Nor travelled in Underground trains.
But Lindsey-Locke gave me suggestions on style,
From Rudy I learned repartee,
I learned how to pass down the tube from John Ryle ;
Look, just look, what Guy's did for me !

The four dressers are among the most desperate in the hospital, and Carruthers has enrolled them in the personal body-guard of Muscarine. He gives them their instructions and orders them to leave just as Muscarine himself enters. Mr. Stewart Harrison played the part of Muscarine with masterly force and made one rather uncomfortably feel that one was in the presence of nothing less than the fiend incarnate. The Superintendent and the House Surgeon discuss the sweeping reforms that are to be brought in, while drinks are served to them by Cyril the Barman—a part admirably acted (particularly on the last night) by Mr. Nash, who fairly threw down the beers upon

the table and so swirled the wet tray about the stage that many in the front rows grew fearful for the safety of their dresses. At the close of the scene a dextrous movement on the part of Billy with a flash-light results in the discovery that Muscarine is the proud possessor of a pair of Argyll-Robertson pupils.

In the second scene, Muscarine is present in one of the surgical wards awaiting the parade of the various departments of his staff. First come the nurses drilled by the efficiently inefficient Arabee. In turn they recite their lines in praise of the new Superintendent, who does not disguise his disapproval of their turn-out.

The coming is now announced of Mr. Lowlands, who is about to do a ward-round with his clerks, and Muscarine disappears in order that, unobserved, he may watch and judge of the efficiency of the visiting surgeon. Enter the clerks and Mr. Lowlands, complete in grey morning coat and half-moon spectacles. I have always wondered how one man takes another off, but Mr. Bishop, who played the part of Mr. Lowlands, certainly knows how. His every gesture and expression, his very voice and appearance were perfect; he over-did it, admittedly, but art always fails if too closely realistic, and mimicry can only succeed in caricature. The author here put over an excellent effect; one felt that every syllable and action of Mr. Lowlands was fairly calculated to make Muscarine, on the other side of the door, see red. It was not that Mr. Lowlands gave you the impression that he was inefficient, he made you very thoroughly feel that he grossly under-estimated his efficiency—that, moreover, the effect on Muscarine was being intensely in the opposite direction. So the Russian comes out, and Mr. Lowlands is "suspended" on the grounds of complete inadequacy.

Next came the dressers drilled by Billy with a voice that any sergeant-major might envy. The exercise performed was "percussion by numbers," and reminded me of a German I once met who did lumbar punctures by numbers and had the same sort of effect on his patients that the percussion of Messrs. Popplewell, Smallshaw, Hollis and Wheeler had on Mr. Nash—who, as the patient without a stomach, was again extraordinarily realistic, particularly on the last night. But Mr. Wheeler forgot to keep the forefinger of his left hand in a line with the seam of his trousers—for which offence he was immediately ordered by Muscarine to be removed, and was shot with due modesty off-stage.

Finally come the Research workers—Messrs. Shone, Southwell, Whitwell and Payne—and praised the great names of Guy's Research in their song, "Please to remember the Lab. Men."

PLEASE TO REMEMBER THE LAB. MEN

No proteose is otiose, no vitamin's in vain;
There is lots of kick in Soda Bic., so join in this refrain:—

If you would have us nip disease while yet it's in the bud,
Oh come along and see us, for we'd love to have your blood,
We *will* collect your gastric juice or any odd secretion,
Or take away your lævulose and measure its depletion.

Please to remember the Lab. men,
Don't leave them in the lurch,
But raise a memorial to old Uncle Oriel,
The Glory of Guy's Research.

Your chlorides and bicarbonates we'll take from you at leisure,
For we can work while you're asleep. Our aim's to give you pleasure.
Who can compare with Osman there? We ask in vain,
"Ah, who?"
Can Benedict or Old Van Slyke, can Folin or can Wu?

Please to remember the Lab. men,
Don't leave them in the lurch,
But drag from his corner the modest young Warner,
The Glory of Guy's Research.

If you've got alkalosis, we will weave our mystic spells;
With *Osmanic* potions drawing *Brack*ish water from your cells.
For if your renal function now is nothing like it was, man,
We do the trick with Soda Bic., administered by Osman.

Please to remember the Lab. men,
Don't leave them in the lurch,
But turn all the lamps on the blushes of Hampson,
The Glory of Guy's Research.

We'll estimate your calcium both tissue bound and free,
Your phosphates and your carbonates wherever they may be.
We'll calculate your errors and departures from the norm.;
We'll calibrate and concentrate the answers on a form.

Please to remember the Lab. men,
Don't leave them in the lurch,
Oh, show to the cynic the great Asthma Clinic,
The Glory of Guy's Research.

Failing to diagnose the stomach-less condition of Mr. Nash, Muscarine orders that they also shall be removed as useless, and, despite the heart-rending attempts at intervention on the part of Hyoscine and a moment's weakening on the part of Billy—immediately corrected by the strains of the Ghost Motif—they are marched off and "dispatched" with suitable alarums and excursions without.

ACT III

The first scene is laid in Sister Bright's Room. A ward-maid enters with the tea and sings the "Ward-Maids' Love Parade," beautifully rendered by Mr. Shone, who irresistably recalled those siren voices that it is whispered may frequently be heard in the Subway.

"Afternoon Tea in Bright."

Mr. Burner (Mr. Southwell) Sister Bright (Mr. Wheeler) Mr. Lowlands (Mr. Bishop) Gladys (Mr. Shone)

THE BOROUGH LOVE PARADE

I'm just a simple Borough wench,
A ward-maid 'mid the dirt and stench;
The horrid stinks
Of kitchen sinks,
And odours rank and kippery.
But pray don't think that I recoil,
I never shy at honest toil.
I work a lot,
Because my mot-
to's *Dare quam accipere*.

The job provides a lot of fun,
And while my work is being done
I see the show.
For you must know
That Guy's is just like Hollywood;
If Joey Hughes would join the flicks
He'd make a fortune, like Tom Mix.
Los Angeles
Would pay big fees
If Mr. Davies-Colley would.

I like to fancy Johnny Eyre as Nero,
A fiddling while the bugs all burn;
And Dr. Douthwaite is my fav'rite hero,
And Adolphe Menjou's just like Mr. Hern.
I'd love to turn a camera on Hector,
It would certainly be the greatest talkie made
And I want to play with Frankie
In a part like Vilma Banky
In the Borough Love Parade.

When Maurice Campbell has his day,
What price Maurice Chevalier?
And I declare
That Conybeare
Has Buster Keaton's jollity;
And Fairbanks, too, would gasp for breath
To see the acting powers of Treth.
I'd be a star
Like Greta Gar-
bo if I had his quality.

As Juliet I'd like to drink the potion
If Symonds were my Romeo ;
And Hurst would surely register emotion
When I saved him from the fatal blow.
" The Curse " would have a starring part for Rudy,
It would certainly be the greatest talkie made ;
And I want to play with Chubby
As the unrepentant hubby,
In the Borough Love Parade.

In dialect Gillespie'd lead the fashion,
And Bobby would be rather hot.
Elaine would be a part I'd act with passion,
If Bromley were my Lancelot.
" The Children Pay " would be the Pembrey theme-song,
It would certainly be the greatest talkie made ;
And I'd love to act with Molly
In a scene of youthful folly,
In the Borough Love Parade.

A short *tete-a-tete* follows between Hyoscine and Billy, and Hyoscine, after being reassured that all will come well in the end, promises to call her lover when Mr. Burner and Mr. Lowlands, who are expected to tea with Sister Bright, have arrived.

The Tea Party is fine. Mr. Burner is played perfectly by Mr. Southwell, who gets those bird-like, almost rectangular, facial gestures as beautifully as he does the voice, the manner of speech and the characteristic attitudes of the arms. Mr. Wheeler as Sister Bright, despite his obviously metastable equilibrium above those stupendous heels, then summarises the Sister-situation of the hospital in what is certainly one of the two best songs in the piece.

AFTERNOON TEA IN BRIGHT

Bobby, Philip, Sister Bright

All Three—
Afternoon tea in Bright, dears,
Going from two till night, dears.

Philip and Bobby—
Frequently we
Drop in to tea,
Afternoon tea in Bright.

Philip—
After he's done his ops. here,
Every good surgeon stops here.

Sister Bright—
Take it from me,
Afternoon tea.

All Three—
Afternoon tea in Bright.

Bobby—
Everybody's talking all together here,
Everyone's forgetting the passing hour ;
Nobody is talking of the weather here.
Dullness is banned, for they all talk scandal at—

All Three—
Afternoon tea in Bright, dears,
Going from two till night, dears.
Buzz like a bee,
Sipping your tea ;
Afternoon tea in Bright.

Sister—
There are Lydia Sisters and they're Giddier Sisters,
and they all serve afternoon tea ;
There are Radium Sisters, also Radiant Sisters,
But there's only just one ME.
There are Theatre Sisters, there are Better Sisters,
There are Sisters Night and Light ;
There are Dental Sisters, there are Mental Sisters,
But only one Sister Bright.
Think of the Sisters everywhere,
Sainted, painted, dark and fair :
The Elegant Sisters and the Elephant Sisters,
The Corney Sisters and the Brawny Sisters,
The Astley Sisters and the Ghastly Sisters,
The Pat, the Fat, the Sam, the Damn,
The Mary Sisters and the Fairy Sisters,
The Out-patient Sisters and the Impatient Sisters,
The Ruth Sisters—Oh !
'Strewth Sisters ;
All of you fill the tempting plate,
Doing your best to emulate—

Philip and Bobby—
Afternoon tea in Bright, dears,
Gossip from two till night, dears ;
Eagerly we
Drop in to tea,
Afternoon tea in Bright.
You must discard your surnames,
Bobby and Phil are her names ;
Manners are free,
Sipping your tea,
Afternoon tea in Bright.

Sister Bright—
Everyone is glad to be invited here,
Likes the picture gallery on the walls ;
Reputations frequently are blighted here.
No one gets rattled by tittle-tattle at—

All Three—
Afternoon tea in Bright, dears,
Gossip from two till night, dears ;
Buzz like a bee,
Sipping your tea,
Afternoon tea in Bright.

The door opens and Hyoscine announces Billy. Burner and Lowlands, he informs them, he has orders to arrest. Hyoscine, realising for the first time that she has now unwittingly betrayed her friends, turns vehemently on her lover, and Mr. Lowlands' half-serious accusation, " Judas Iscariot . . . Jezebel . . . almost," is good. The curtain falls on Hyoscine beautifully registering at last " complete aloneness " in the world.

I SHALL SMILE

I shall smile for all of the while
I'll just have you.
Life's O.K., so let us be gay
To outward view.
We shall be happy and never more grieve,
Sorrow shall leave no trace.
Let us be wearing our hearts on our sleeve,
Woe will give place
To a glad face.
I shall smile for all of the while
I'll have just you.
You're my own, no more I'm alone and blue.

In the final scene, Billy, Burner, Lowlands and Sister Bright are playing bridge in the Court-room awaiting the trial. Judging from the delight of the audience, Mr. Lowlands' calling was sufficiently unorthodox to be amusing. The game concludes with the singingof the " College Crawl " —a masterpiece of music in which Mr. Ive truly gives one a glimpse into the " holy of holies "— a fugue for four voices which inevitably recalled the great master himself, fairly forced even Mr. Burner to join in the dance, and completely cured the repressions of most of those in the stalls and of all those in the gallery.

THE COLLEGE CRAWL

I've got a new dance !
I've got a true dance !
I've got a dance that's lots of fun !
I've got a Guy's dance !
I've got a prize dance !
Just let me show you how it's done :—

Gently sway, but don't delay the rhythm of your stride,
That's the way to do the College Crawl ;
Like a snake you try to make a fascinating glide,
That's the way to do the College Crawl.
Let your face be cold as any House Physician's hearth,
Stony as the passages and steps ;
Stamp your feet a little as if waiting for a bath
Call on William's name
(That's a College game) ;
Gently sway, but don't delay the rhythm of your stride,
That's the way to do the College Crawl.
Dawdle gaily like the daily waitress in her pride,
That's the way to do the College Crawl.

Now have a go, dear,
Begin it slow, dear,
The way a cleaner's footsteps drag.
We'll try it now, dear,
I'll show you how, dear,
As like a College bed you sag.
Gently sway, etc.

But the gaiety is short-lived. Muscarine enters with a jury of dressers and nurses, and Mr. Burner and Mr. Lowlands take their places in the dock. From this point on the play proceeds in rhyming couplets giving to an atmosphere, otherwise heavy with impending tragedy, a suggestion of the closing scene of a pantomime. Clever again is the contrast between the heavy pomposity of Muscarine and the charming simplicity of Mr. Lowlands' defence—" and once I think I saved a person's life."

So the death-sentence is passed, the jury object and Muscarine flies into a rage. Then suddenly the Russian, stricken down with pain, lets out the horrid secret of his life :—

" —— 'Tis more than frightening,
The pain which stabs my muscles feels like lightning."

The cat is now completely out of the bag. It appears that Billy never really shot either Agarol or the research workers ; instead he has them safely hidden in the " Ship and Shovel," busily occupied in the study of their alcoholic curves. Everyone is grateful to Billy, and Sarah Gamp comes on and gives him as his reward the hand of the beautiful Hyoscine. The curtain is then rung down upon a scene of general rejoicing.

Solution to Crossword Puzzle in Residents' Play Programme

	1R	2E	S	3I	D	4E	N	5T	S	6P	L	7A	Y	
8P		V		S		U		H		A		B		9A
10H	E	E	L	I	N	G		11E	N	C	O	R	E	D
Y		N		S		E		A		E		I		V
12S	K	I	P		13G	N	A	T	S		14E	D	G	E
I		N		15I		I		R		16A		G		R
17O	R	G	A	N	I	C		18E	A	R	N	E	S	T
L				E						I				I
19O	M	20N	O	P	O	21N		22M	A	S	T	23E	R	S
G		E		T		O		E		E		D		E
24I	N	C	A		25O	M	E	N	S		26F	I	R	M
S		T		27S		A		T		28D		T		E
29T	H	A	N	K	E	D		30H	A	R	P	O	O	N
S		R		U		I		O		A		R		T
	31G	Y	N	A	E	C	O	L	O	G	I	S	T	

Only two results were received, both being correct. They were from Nurse E. M. Gordon, who receives a box of Chocolates, and Mr. A. Hobson, who receives an unopened bottle of Whisky.

Correspondence

A Dental Mistake

To the Editor of the GAZETTE

SIR,—Will you please note that the drug mentioned in my paragraph on premedication in the paper I read before the Guy's Dental Society, on "Some Main Points in Dental Anæsthesia," is not "perucitin," but "pernocton." This was printed in your edition of 7th February.

Yours, etc.,

RONALD JARMAN.

10, New Cavendish Street,
W.1.

Reviews

Medical Jurisprudence and Toxicology. By J. GLAISTER, M.D., D.P.H., etc., in conjunction with J. GLAISTER, M.D., D.Sc. Published by Messrs. E. & S. Livingstone. *Price* 30*s. net.*

THIS volume, now in its fifth edition, may be described as one of the most solid stones in the foundation of medical jurisprudence. It is a very massive book, over 900 pages, and the bulk of the book is largely due to the reports of actual trials and the inferences for the medical man to draw from them. The book is well constructed; it opens with chapters on procedure, on the Workmen's Compensation and similar Acts, and it then deals in a very able fashion with the methods and fallacies of identification of the living and of the dead body. After treating forms of deaths and acts of violence, the first part ends with a very instructive chapter on the medico-legal aspects of lunacy. The second section is devoted to toxicology and is very complete. The amount of labour expended in collecting the numerous facts and the reports of trials must have been immense. The book is written in a delightful style, its illustrations are excellent, and though, perhaps, it is a trifle too substantial for the average student who "swots" his medical jurisprudence up in the last few anxious nights before the Conjoint, it is a valuable book of reference.

Diseases of Children. By WILLIAMSON and MACKIE. Published by Messrs. E. & S. Livingstone. *Price* 10*s.* 6*d. net.*

THIS book has much to recommend it, and also, unfortunately, many faults. The very aim of the book is to provide for the newly qualified man or for the senior student a concise and easily-assimilated outline of pediatrics. So far so good; we are not of that large army of critics who decry any attempt at simplification of medicine. Not content with this, the authors have also attempted to include within the book those rare diseases which, however interesting they may be, and however essential for post-graduates studying for membership, are, we are convinced, completely out of place in an A B C of children's diseases. To take a concrete example: less than a page is devoted to empyema and its treatment, about a page and a half are devoted to the myopathies. As a concise summary of the rarer conditions the book is excellent, but the more common, and therefore less interesting, diseases are somewhat scamped. There is a most excellent chapter on the common infectious diseases, and a very useful list of prescriptions is appended at the back. The illustrations are extremely good, the binding is delightful, and if the authors had not been so unlucky in falling between two stools, we would have given the volume our unguarded praise. As it is, the book is interesting, and may be recommended to the post-graduate who already knows the groundwork of pediatrics.

Infant Feeding in General Practice. By J. V. C. BRAITHWAITE, M.D., M.R.C.P. (Lond.). Published by Messrs. John Wright & Sons, Ltd., Bristol. 140 pp. *Price* 4*s.* 6*d.*

DR. CAMERON, whose house physician the author once was, in his introduction comments that the literature of general practice is all too scanty; here is a book written by a general practitioner for others of his kind, and especially for the man new to practice, who is all too conscious of his ignorance when babies are concerned. Much of the useful advice may be heard in the baby ward of this hospital, but it is all illustrated and supplemented by the writer's own experience. This book is most interesting and very well worth its cost of a few shillings.

Ante-Natal Care. By W. F. T. HAULTAIN, F.R.C.S.E., M.C.O.G., and E. CHALMERS FAHMY, F.R.C.S.E., M.C.O.G. 2nd Edition. Published by Messrs. E. & S. Livingstone. 127 pp.

THIS book, emanating from Edinburgh, is deserving of a wide circulation. It is well written, and sets forth the aims and practice of ante-natal care for all to appreciate. It should

be most useful to men starting general practice, and if read by candidates before going up for *vivas* in midwifery, should prove most valuable in providing a clear understanding of all the points necessary in watching a woman through pregnancy, and thus rid the *viva voce* of many of its stumbling-blocks. Altogether this is a most valuable book for its size.

The Action of Muscles. By Sir COLIN MACKENZIE, M.D., F.R.C.S., F.R.S. (Edin.). 2nd Edition. Published by Messrs. H. K. Lewis & Co., Ltd. 288 pp. *Price* 12*s.* 6*d.*

THIS book may not be of interest to everyone, but to the anatomist and to the man interested in the remedial treatment following nerve injuries its interest should be most absorbing. Professor Mackenzie would have it that to each muscle there is only one action, and takes his illustrations from those of the arm and forearm; though this may appeal to the second-year student, we think few anatomists or surgeons would agree with this view. That the biceps is not a flexor of the elbow-joint, but only a supinator of the forearm, is hard to believe, though the arguments in favour of this view are difficult to refute.

The chapters devoted to the promotion of recovery in paralysed muscles are exceedingly lucid in their exposition not only of principles but the detail of their application. They well repay reading, and for these chapters alone the book is worthy of attention.

Diseases of Women—By TEN TEACHERS. Edited by COMYNS BERKELEY, H. RUSSELL ANDREWS, and J. S. FAIRBAIRN. Published by Messrs. Edward Arnold & Co. 558 pp. *Price* 18*s.*

THIS manual of gynæcology needs no introduction; the present edition has been thoroughly revised and parts re-written. For the most part it is a good book, and in its treatment of its subject is brief but sufficiently complete for most students' needs. It can be recommended to those in need of a reliable text-book of this size.

Ultra-Violet Rays in the Treatment and Cure of Disease. By PERCY HALL, M.R.C.S., L.R.C.P. 4th Edition. Published by Messrs. Wm. Heinemann & Co., Ltd. 248 pp. *Price* 12*s.* 6*d.*

IN writing a compact review of the application of ultra-violet rays in therapy, the author may be congratulated. General knowledge in this subject is wanting, but here we may find much useful information without having to make great search for it.

Bacteriological Technique. By J. W. H. EYRE, M.D., M.S., F.R.S. (Edin.). Published by Messrs. Bailliere, Tindall & Cox. *Price* 21*s.*

THIS book, now in its third edition, is for the instruction of those who have need to become efficient technicians in bacteriological work, and to act as a reference for details of various technical processes that may be required by research workers or candidates for the higher examinations which include bacteriology in their syllabus. There is a wealth of information upon the refinements of such subjects as sterilisation, microscopy, staining methods, media preparation, the identification and study of micro-organisms, and routine and experimental animal work.

It does not deal with the collection of materials (fæces, urine, C.S.F., exudates, etc.) from the patient, nor with the particular preliminary methods in treating such specimens. There is no description of the numerous serological tests such as the Wassermann, Kahn, Widal, etc., used in the diagnosis of disease, nor is there any mention of the preparation of bacteriological and serological products for the treatment of patients. These omissions have obviously been intentional, and are not considered by the author as within the scope of this book.

Apart from any criticism of the limitation of subject matter the book is of excellent construction, concise arrangement and lucid description. There is a large number of illustrations of selected types of apparatus, and constant information is given in the text upon the purchase and preparation of equipment. It is in such detail as this that the book excels. To anyone with instructions to equip a laboratory and to train laboratory assistants it would be an invaluable guide.

The section upon Public Health and Commerical Bacteriology has been extensively revised and enlarged. Full descriptions are given of the methods for the analysis of water, milk, cream, butter, ice-cream, unsound meats, shell-fish, sewage, sewage effluents, soil, air and the testing of disinfectants.

This section alone should ensure a wide demand for this edition.

A System of Clinical Medicine. By — SAVILL. 8th Edition, 1930. Published by Messrs. Edward Arnold & Co. *Price* 28*s.*

IF one has taken a longer time than usual to review this book it is because it is so completely different from the majority of text-books on medicine. It extends its scope far beyond the ordinary purview of "medical" writings, specialists contributing chapters on diseases of women, the ear and eye, which are reminders of the fact

that disease cannot be put into watertight compartments.

From the first edition onwards, this book has approached the subject from the aspect of symptomatology, and particular diseases have been discussed in connection with their leading symptoms. This most difficult task has been accomplished only by a large number of cross-references. It is on this account, therefore, a book which the student starting his career will not appreciate, but the practitioner who wishes for stimulation will do well to invest in, this cross between a text-book of medical disease and an index of differential diagnosis.

Perhaps the greatest benefit the book can confer is the extremely lucid explanation of laboratory tests which are becoming more generally used as time advances. Many of the tests are naturally complicated, but others, such as the estimation of the blood urea, are so simple that they can be done by the practitioner himself.

The book is as complete a summary of modern medicine as is possible to obtain, and, what is even more important, it has kept perspective. Tuberculosis is discussed in detail, but anæmia is given a few lines of small print. It is worth 28 shillings and diligent reading.

Sport

Rugby

Guy's v. Gloucester

THE return fixture with Gloucester was played at Honor Oak Park on Saturday, January 24th, and resulted in a well-deserved victory for the Hospital by 2 penalty goals and a try (9 points) to a try (3 points).

In view of the approaching Cup-ties, this game served as an indication of the form of the Hospital, and it was pleasing to see the pack give by far and away their best display of the season.

Gloucester are renowned for their forwards, which are considered with few exceptions the best in the country. In this particular match they fielded their strongest available pack, but, in spite of this, the Guy's forwards not only gained possession in most of the set scrums, but they held an advantage in the line-outs and loose in which Morgan, Batchelor, Hogbin and Popplewell were particularly prominent.

In the set scrums, O'Shea, Kunovsky, Knight and Lashmore were equally as effective. By their hard work they were mainly responsible for the pack's superiority in securing the ball so frequently for the Guy's backs.

Windsor Lewis was in his best form, and continually created openings for his colleagues in the back divisions. Throughout the season Lewis has been the mainstay of the team, and on his form, which has been excellent throughout, it is almost incredulous to think that the Welsh selectors have a better stand-off half. It was a pity that Windsor Lewis did not play up to his usual standard during the last trial, which undoubtedly cost him his place, but upon reflection the selectors will undoubtedly give him another chance in one of their remaining matches.

Giesen and Thomas ably supported their captain in the openings he created, and, but for the visitors' remarkable accuracy in marking and tackling, the margin in favour of the Hospital would have been greater.

It was encouraging to observe the vast improvement of the wing three-quarters, Ashdown and Burrows. Both are in their first year at the Hospital and they have improved considerably. Their tackling was good, and they went straight for the line—if only they had a better understanding with their inside men and provided they were ably supported the back division would be well-nigh perfect.

Wailer at full-back compared favourably with Boughton, the trial cap, and in the early part of the second half, when the visitors launched a heavy offensive, his tackling and kicking proved of great value.

There is no doubt that the refereeing of Mr. B. S. Cumberlege had a marked effect upon the game, which he controlled with extraordinary skill and firmness. Mr. Cumberlege was determined that the laws of Rugby, as interpreted, should be strictly enforced. He is a strong advocate of the law for the protection of scrum-halves and backs against the wing-forwards, and in the first five minutes he not only awarded a penalty to Guy's, from which they scored, but audibly warned the offender that if he did it again he would not remain on the field.

Gloucester unfortunately lacked the assistance of their star centre, McCanlis, whereas Guy's were at full strength. Winning the toss, Guy's had the advantage of a slight breeze, but in the early stages the visitors pressed to our 25 and, following some excellent passing between the three's, Guy's went through and were only held up by Boughton, who brought off a splendid tackle and cleared his lines. Following a scrum, Gloucester were penalised for obstruction, and

Hogbin kicked a fine penalty goal from near the touch-line.

For a long time Guy's continued to attack, but failed to press home the advantage owing to the superb tackling of the "Citizens." On one occasion Batchelor broke through entirely on his own, but was badly supported, and he was overcome when faced by the full-back.

Guy's were eventually awarded another penalty for offside, and again Hogbin kicked a good goal from a position in front of the posts, but near mid-field. At this stage the Guy's forwards were securing the ball regularly, but, although the backs brought off some brilliant rounds of passing, the visitors' defence was sound and equal to the demands for keeping their line intact.

Following the interval and with the wind in their favour, Gloucester made several dashing raids and applied considerable pressure to break through, but the Hospital rose to the occasion and earned many good marks for their excellent defence.

After standing up to a severe onslaught, the Hospital eventually relieved, and, following good work by the backs, Windsor Lewis eventually created an opening for Thomas, who made a lot of ground before passing to Ashdown. Finding the visitors' defence spreadeagled, the latter made full use of his speed to register a clever try near the posts. One or two attempts were made to charge the kick, and eventually the referee ordered "no charge," but, in spite of this, Hogbin missed the goal.

In the closing stages the Gloucester forwards made a great raid, and eventually Hemmings forced himself over for an unconverted try.

Team.—L. Wailer; D. E. Ashdown, J. E. Giesen, I. K. Thomas, G. A. Burrows; Windsor H. Lewis, R. J. Eustace; J. S. Batchelor, J. P. O'Shea, J. Kunovsky, R. G. Knight, J. R. F. Popplewell, T. Morgan, G. F. Lashmore, R. A. P. Hogbin.

Guy's v. Rosslyn Park

ON Saturday, January 31st, the Hospital visited Richmond and defeated the home side by a dropped goal, a penalty goal (7 points), to a try (3 points).

The unfavourable weather conditions during the week had rendered the ground at Honor Oak Park unplayable, and at the last moment the venue was transferred to the Old Deer Park, Richmond. In spite of the fact that Guy's lacked the services of Wailer, Giesen and Eustace, the backs gave a surprisingly good display, and had very bad luck in not scoring on several occasions. However, it was a good win for the Hospital, which they fully deserved by virtue of their superiority in the back division.

Guy's started in hurricane fashion, and the early stages indicated that they would secure a runaway victory. The Park pack were much heavier than the Hospital, but, in spite of this, the Hospital out-shoved their opponents and more than upheld the good impression they created against Gloucester. The re-organised three-quarter line did exceedingly well and were constantly threatening danger, and, but for the splendid tackling of the home side and in particular that of Bradford, the full-back, they would have registered a number of points.

After 20 minutes' play, Rosslyn Park temporarily lost the services of McIntosh, one of their centres, but this reverse appeared to inspire the Park to great efforts, and their forwards gave their backs far more opportunities than they had had hitherto.

Just prior to this, Windsor Lewis dropped a clever goal for the Hospital, and during the absence of McIntosh, Iliffe went over for an unconverted try for the Park, following one of several fine rushes by the home side's pack. Baker had bad luck with the kick—the ball striking the post.

In the second half play was fairly even—both defences showed up very well and the tackling of Guy's was particularly sound. The outstanding figure during this half was Bradford, who time and again foiled the efforts of the Hospital by his accurate fielding and kicking to touch. A penalty to Guy's enabled Hogbin to give the Hospital the lead, and soon afterwards Windsor Lewis ran to within a few yards of the line before being brought down.

Guy's continued to have the better of the game, and one certain try was missed by a knock-on and another when Ashdown elected to cut in, instead of running straight, when he had only one man to beat.

Team.—W. Lewis; A. J. D. Lewis, I. K. Thomas, G. A. Burrows, D. E. Ashdown; Windsor H. Lewis, J. Howell; J. S. Batchelor, J. P. O'Shea, J. Kunovsky, I. G. Robin, J. R. F. Popplewell, T. Morgan, G F. Lashmore, R. A. P. Hogbin.

Guy's v. Rosslyn Park

FOR the second Saturday in succession, Guy's visited the Old Deer Park, Richmond, on Saturday, February 7th, and gained a convincing victory by 5 placed goals and a penalty goal (28 points) to a penalty goal (3 points).

If the Hospital can produce anything like the form displayed in this game, they should have nothing to worry about in the Inter-Hospital Cup-ties, but somehow inter-hospital contests do not reveal true club form, and invariably the unexpected happens.

The forwards put up another good display by holding the Rosslyn Park pack, who were much heavier and, during the first half, were difficult to hold. However, Guy's held a distinct advantage in the back division, where they were strengthened by the return of A. G. Johnson and J. E. Giesen. The three-quarters were in wonderful form, and nearly every opportunity that came their way was used. Once again the inspiration of the side was Windsor Lewis, who shared in every attacking movement and repeatedly set his three's in motion in the smoothest possible manner.

Guy's persevered with J. Howell at scrum-half, and if he can only retain the form displayed in this game he should be sure of his place in the Cup side. He certainly had a better understanding with Windsor Lewis and his passes were far more accurate.

During the first half, Guy's scored tries through J. E. Giesen and A. G. Johnson, both as the result of first-class passing between the three's and which were converted by R. A. P. Hogbin. Near the interval, Rosslyn Park reduced the lead as the result of a capital penalty goal taken by A. R. Alston.

Playing extremely good football, Guy's added further tries in the second half through J. E. Giesen (twice), I. K. Thomas and D. E. Ashdown, Hogbin converting three.

Team.—L. Wailer; D. E. Ashdown, J. E. Giesen, I. K. Thomas, A. G. Johnson; Windsor H. Lewis, J. Howell; J. S. Batchelor, J. P. O'Shea, J. Kunovsky, R. G. Knight, J. R. F. Popplewell, R. A. P. Hogbin, T. Morgan, G. F. Lashmore.

Guy's v. Cambridge University

IN spite of the fact that they were without Popplewell, Morgan and Knight, Guy's did extremely well when they visited Cambridge on Wednesday, February 11th, and were defeated by a placed goal, a penalty goal and 4 tries (17 points) to a dropped goal and 2 tries (10 points).

The 'Varsity fielded a strong side, which included eight Blues, of whom three were internationals. J. G. Askew, the newly-elected captain of Cambridge, occupied one of the centre three-quarter positions, with R. W. Smeddle on the wing. Both the 'Varsity halves, F. W. Simpson and J. H. C. Phillips, turned out, whilst the forwards included P. W. P. Brook, D. M. Marr, A. R. Ramsay and G. E. Valentine.

Aided by the assistance of the wind, Guy's did most of the pressing in the opening stages, but the wind upset several passing movements on both sides, and the game was decidedly scrappy. The Hospital appeared to be the faster side of the two, but they had nobody with the pace of Smeddle, who was allowed to race away and score on two occasions.

After Guy's had had the advantage of the early exchanges, Windsor Lewis opened the scoring after 20 minutes' play by dropping a fine goal from 35 yards' range. However, the 'Varsity did not allow the lead to be retained for long, as a few minutes later they were defending in their own 25 when Simpson recovered from a mistake and just got his pass to Phillips. The last-named sent Hartley (who was making his debut for Cambridge) away for a long run, before he gave a well-judged pass to Smeddle, who ran round the posts unchallenged for Askew to add the extra points. There was no further scoring until just before half-time, when an excellent round of passing between Askew, Brook and Bailey let in the latter for an unconverted try.

Rain came on when the second half started. Guy's again pressed strongly, and on one occasion Giesen should have scored, but, after breaking away from a tackle, he lost the ball with the line at his mercy. Soon after, Guy's had their efforts rewarded when they charged down a kick by Smeddle, and Lashmore, who was unmarked, dashed over for a try, which was not converted.

Almost immediately afterwards the best movement of the match ended in Guy's securing the lead, as the result of a splendid break through by Windsor Lewis, who, after zig-zagging through the defence, eventually sent in Johnson for an unconverted try. The advantage was not held for long, as, following good work by Phillips, Marr picked up and ran in for a try, which Askew failed to convert.

The game was now being played at a remarkably fast pace, with both sides striving hard to add to their score. Unfortunately, Robin got injured and was returning to his place when the ball came his way. It was too much of a temptation to miss, and he fielded it, only to be penalised and for Askew to place a goal. Just on time, Smeddle was sent away again, and there was no chance of stopping him registering another try, which was not converted.

Team.—W. Lewis; D. E. Ashdown, I. K. Thomas, J. E. Giesen, A. G. Johnson; Windsor H. Lewis, J. Howell; J. S. Batchelor, J. P. O'Shea, J. Kunovsky, L. B. Hilton, I. G. Robin, G. F. Lashmore, R. A. P. Hogbin, A. R. Clarke.

Fencing

Guy's v. Polytechnic

A MATCH in foil, epée and sabre was held against the Polytechnic on January 31st, and resulted in a loss for the Hospital of 15 defeats to 11.

In foil, Morris fought with considerable skill, and won two of his fights, while Holman and Forbes won one each. Holman was a little wild in his parries, but otherwise fought well. Forbes fought with a composure that was good to behold, and showed improvement in attack, but in defence was too apt to make an ill-formed parry and return which had the appearance of a stop-hit.

In the epée event Morris again fought well, and secured one win and a " coup-double." Hodgkin showed improvement, and was unfortunate not to win more than one contest, while Irish also won one.

The sabre event was lost by the odd fight only, and here Morris distinguished himself, winning all his fights without undue difficulty. Irish was not at his best, and suffered two defeats. Both of these he took to the last hit and then lost through impatience, dashing in to meet his doom as if he wanted to get the horrid business finished. Forbes fought very well considering his inexperience in this weapon, and showed improvement in the formation of his attacks. Although he was defeated in all his fights, he took two to the last hit.

The scores were: Foil—Morris, 1 defeat; Holman, 2 defeats; Forbes, 2 defeats. Epée—Morris, 1 defeat, 1 coup double; Hodgkin, 2 defeats; Irish, 2 defeats. Sabre—Morris, 0 defeats; Irish, 2 defeats; Forbes, 3 defeats.

Inter-Hospital Cup Final

THE final pools for the Inter-Hospitals' Fencing Cup were held at the London Fencing Club on February 14th, Guy's, the holders, losing the Cup to St. Mary's Hospital by 38 points to 40, University College Hospital being third with 37 points. The Guy's team consisted of Gorer and Garrus in foil, Monkhouse and Paterson in epée, and Garrus and Morris in sabre. Preliminary pools were held on the three days preceding the 14th, and in these Gorer and Monkhouse were eliminated in foil and epée respectively. In the Final, Garrus, owing to a mistake, arrived half an hour late, and, in consequence, was scratched from the foil event; Guy's, therefore, had no representative in this event. In epée, Paterson gained third place after a barrage with three other competitors, and in sabre first and second places were secured by Garrus and Morris respectively; in spite of this feat, however, Guy's could not obtain enough points to beat St. Mary's, whose team deservedly won the Cup after a consistently good display of fencing.

It may be said that the failure of Guy's to hold the Cup was due solely to bad luck, for Gorer was in no wise up to his usual form in the preliminary pools owing to illness beforehand, and the tardy arrival of Garrus was caused by no fault of his own. Had either of these members of the team fought in the foil event, Guy's would most certainly have won the Cup.

Of the members of the team Garrus, Morris and Paterson gave the best performances. In the sabre event, Garrus showed himself superior to all his opponents, and was undefeated, while Morris fought with determination and considerable skill. In epée, Paterson fought confidently and with restraint, using a *fleche* attack to good effect on not a few occasions. The team as a whole gave a most creditable display, and is to be congratulated on securing second place in the Final in the face of dire misfortune.

Rifle Club

THE Annual General Meeting was held on Tuesday, December 2nd, 1930, when the following Officers were elected for the 1931 season :—

President.—Mr. W. R. Trethowan.

Vice-Presidents.—Mr. Ogilvie, Mr. Thompson, Mr. Slesinger, Mr. Dowsett.

Hon. Secretary.—R. A. Johnson.

Captain.—A. W. Turner.

Committee.—C. L. Stevens, P. A. Wilkinson, N. T. Garner, J. M. Lea, G. C. Denney, H. Westoby.

It was decided that the Staff match should be held on the first Sunday in June.

Notices will be posted in the Colonnade as to when shooting commences—it is usually about the first Wednesday in May, and vouchers for cheap tickets down to Bisley at the reduced rate of 3*s.* return will be put on the board, together with the times of trains from Waterloo. It is hoped that as many men as are interested will come down and shoot, so that the Committee may be able to choose a team capable of once more winning the Inter-Hospitals Cup, which has evaded us for the last few years. Apart from the shooting, all members can be sure of a very pleasant afternoon in the country—surely something to be thankful for during a hot summer in London. Meals may be obtained at the London and Middlesex Club House at very moderate charges, and all rifles are provided by the Club.

R. A. JOHNSON, *Hon. Secretary.*

Appointments

J. D. Cambrook, M.R.C.S., L.R.C.P., L.D.S., Honorary Dental Surgeon, Queen Charlotte's Maternity Hospital.

R. Symmons, L.D.S., R.C.S. Eng., Chief Assistant, Dental Department, St. Bartholomew's Hospital.

EDS. { P. M. F. B. / P. V. R.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

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PASSIM

THE contented mind is bred only of a healthy attitude of discontent, for discontent spells ambition, and those of us who profess to possess feelings and thoughts above those of the average vegetable can never rest content unless we have fresh fields to conquer, for we always hope that the next conquest may be something less pitiable, something more praiseworthy than the last poor effort which placed us in our present, to our mind, unenviable position. And so it is that the man with ambition, though all of us have ambitions which laziness forbids us from confessing even to ourselves—the man, then, who admits ambition, is only content when he is striving after some elusive will-o'-the-wisp, when he is standing on the brink of yet another unknown but undoubtedly exciting adventure, with the result that his friends call him unstable, madcap, discontented. We believe it was this love of adventure (though to look at us now you would never suspect us of being a potential Crusader, a Harry Hotspur or a Lindberg) which led us to choose Medicine as a profession. There could be no more adventurous life. We need not even recall the memories of innumerable adventures we have already experienced; they stand unpleasantly vivid in our mind—our first introduction to a corpse, our first sight of blood, our first confinement, and later—and oh gruesome memory!—our first anæsthetic; to say nothing of the endlessly recurring but none the less adventurous experiences of the Examination Hall. And so at last we come to the greatest excitement of all—the adventure of Life, of the outside world, where we must stand alone, no longer a carefully nurtured part of a great institution, a meticulously protected pawn, but a separate entity, self-dependent and splendidly insolvent.

"General Practice is a dog's life" is one of the platitudinous pieces of advice handed down from generation to generation; and so it is. It means spending the first decade hopelessly in debt; it means getting up at night; it means being continually at the beck and call of everyone; it means dealing with uninteresting and unreasonable patients and getting no thanks for it. But all these things we have experienced already, and they should not terrify us now. We have been in debt, up at night, the butt of uninteresting patients and unreasonable members of the Staff, and we have enjoyed it, because such a life has its humorous side and its human side. There are worse things in this life than General Practice.

WE have been asked to announce that the publication of the January number of the *Reports* has been unavoidably delayed and will appear in the middle of March. It will constitute a symposium on streptococcal infections similar to that on staphylococcal infections in the issue for last April, and will consist of the following papers:—

The Natural History, Prognosis and Treatment of Streptococcal Fever. By John A. Ryle, M.D., and R. E. Smith, M.B.

Streptococcal Puerperal Sepsis. By G. F. Gibberd, M.S.

The Streptococci: Their Significance in Clinical Medicine. By F. A. Knott, M.D.

Acute Streptococcal Infection of the Throat. By W. M. Mollison, C.B.E., M.S.

Hæmolytic Streptococci in the Mastoid. By T. B. Layton, D.S.O., F.R.C.S.

Streptococcal Infections of the Skin. By H. W. Barber, M.D.

A Bacteriological Study of the Apical Infection of Teeth. By Arthur Bulleid, L.D.S.

A Case of Streptococcal Septicæmia with Peritoneal Localisation. By Philip Turner, M.S.

WE would like to offer our heartiest congratulations to Mr. Harold Bloom for winning the B.M.A. Prize (1930-31) for Essays by Final-Year Medical Students and Newly Qualified Medical Practitioners. The competitors in the London area are divided into two groups, and a prize is given for the best essay contributed from each group. Group I consists of Guy's, the London, St. Bartholomew's and St. Thomas's. The subject of the essay this year was : " Describe and discuss Cases illustrating the Modern Methods of the Diagnosis of Early Pulmonary Tuberculosis."

WE should like to draw the attention of our readers to an address which is to be given by Dr. Hector Charles Cameron on Tuesday, March 10th, at the B.M.A. House, Tavistock Square, at 5.30 p.m. The title of the address is " Children in Hospital and in the Home—a Contrast," and it will be given especially for the guidance of young practitioners and senior students going up for the Final. Invitation cards have been distributed to most of those who fall into this category. Should anyone who has not received a ticket be desirous of attending, he may procure one on application to the B.M.A.

WE have been requested by the Hon. Secretary of the Physical Society to announce that entries for the Treasurer's Prize Essay must be in by March 31st. The subject is : " The Clinical Varieties of Dyspnœa and their Physiological Interpretation."

HEALER OF DISEASES

Why suffer ? Come and see

THE ISRAELITE HEALER,

For all diseases of body and eyes, chronic indigestion, consumption, asthma and convulsion.

Mrs. ANNIE M. H——.

One stamp for reply.

We understand that a syndicate of physicians has offered her a large sum of money on condition that she retires from practice.

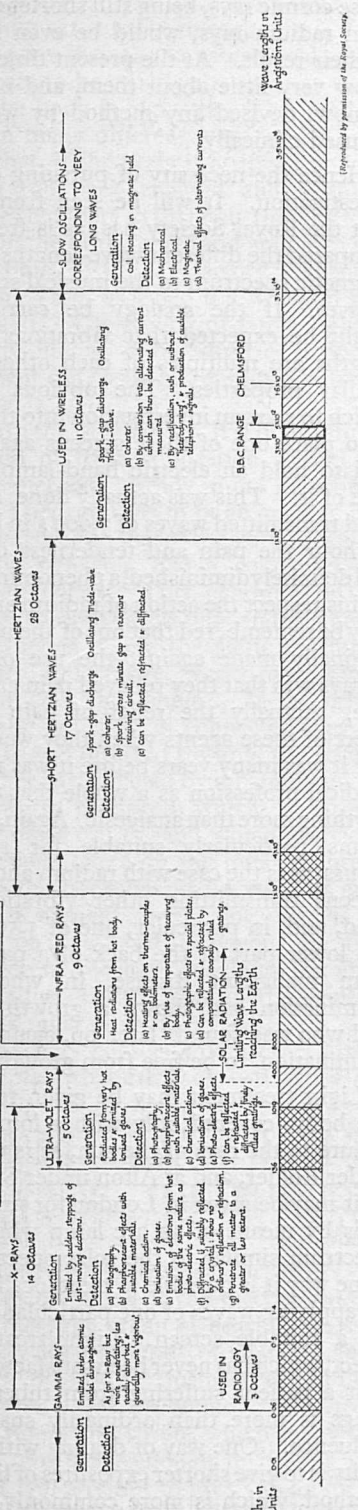
The Effect of Variation of Etheric Wave Length in Malignant Disease

A Clinical Lecture by C. E. Iredell, Esq., M.D.

GENTLEMEN,—The word " actinotherapeutics," which has been current at Guy's for 26 years, has lately come into general use. Books have been written under that title and a *Journal of Actino-therapy* has been in existence for five years. The late Superintendent stated that he invented the term, and under it included all forms of ray treatment. The general intention of the definition is clear enough. It includes treatment by means of heat, or infra-red, light, ultra-violet, X- and radium rays and is also generally understood to embrace diathermy and high-frequency treatments. In the past it was looked on as the duty of the surgeon in charge to take steps to ensure that all advances in the province of physics should be investigated in this department with a view to ascertaining their effect on the human body. If this be still true, it is a matter of peculiar importance at the present time in view of the failure of radium and X-rays to fulfil the expectations that they raised in the past.

It is difficult to realise, when one sees a case of inoperable malignant disease shortly after an application of radium, and notices, as may constantly be done, that an ulcer has healed up, pain and discharge have ceased, and the patient feels well and strong, that the total mortality of malignant disease has not been affected by the introduction of these remedies. Yet such is the case, as I have frequently pointed out in the *Gazette* and elsewhere. One fact which is worthy of attention is that recurrence is just as likely to take place after apparent removal of a tumour by means of radium or X-rays as it is after surgical operation. Another point of interest is that the second application of radium or X-rays is less satisfactory than the first, while the third application frequently has no beneficial effect whatever. All that one can say is that the malignant disease becomes acclimatised and fails to respond to the treatment.

Because of the present apparent deadlock in the treatment of malignant disease it has become desirable to search for other avenues of investigation. In using the word " deadlock " one must not lose sight of the fact that radium and X-rays, within their own sphere, while really a small one, are extremely valuable remedies in the treatment of cancer, and suggest a fuller exploration of the other alternatives offered by the electro-magnetic spectrum of which they are component parts.


RANGE OF ELECTROMAGNETIC WAVES
62 Octaves Uniform Velocity of 30,000,000,000 centimetres per second.
VISIBLE RAYS 1 Octave
X-RAYS 14 Octaves
GAMMA RAYS
ULTRA-VIOLET RAYS 5 Octaves
INFRA-RED RAYS 9 Octaves
SHORT HERTZIAN WAVES 17 Octaves
HERTZIAN WAVES 29 Octaves
USED IN WIRELESS 11 Octaves
SLOW OSCILLATIONS CORRESPONDING TO VERY LONG WAVES
USED IN RADIOLOGY 3 Octaves
SOLAR RADIATION
B.B.C. RANGE CHELMSFORD
Generation
Detection
Wave Lengths in Ångström Units

From this diagram of the electro-magnetic spectrum, issued by the Royal Society, it will be seen that these various agencies—heat (or infra-red radiation), light (or visible radiation), ultra-violet radiation, X-rays and the γ-rays of radium—are all waves or vibrations of one medium, which we know as ether, differing from each other only in wave-length or frequency of vibration. Wireless waves might be included, but as, up to the present, they have not been used for other than experimental treatment, I have disregarded them for the purposes of this lecture.

The unit of length in which these waves are measured is the ångström unit (å), which is one ten-millionth part of a millimetre—a length so small that it is almost impossible to visualise, and it is a remarkable fact that etheric waves, which differ from one another by an infinitesimal length, produce widely differing clinical results. Thus the infra-red, or heat, rays (4,000,000—7,700 å) used locally will relieve the pain of inflammation, while the light or visible rays (7,700—3,900 å) used all over the body, are good for surgical tuberculosis and rickets. The ultra-violet rays (3,900—136 å), used locally, are effective in cases of lupus vulgaris, while the still shorter rays, X-rays (1,000—.06 å) are useful in cancer and in removing the hair in cases of ringworm. The γ-rays of radium (1.4 å downwards) are used in cancer also, and are especially useful for nævi on which X-rays have almost no effect.

It will be seen, therefore, that these rays, though exactly similar in nature but varying in wave-length, have different effects on disease. This is not the only remarkable feature of the components of the electro-magnetic spectrum. These components, in their turn, when divided up produce effects which are distinguishable from each other. An instance of this is the difference between superficial and deep X-ray therapy. It was first appreciated at Guy's in 1908, five years before any results were published at Erlangen, that patients suffering from cancer responded better to X-rays when the less penetrating rays were cut off by means of a lead filter. This had previously been found to be true of radium, and suggested the hypothesis that the cutting off of extraneous rays (*i.e.*, using radiations within certain small limits of wave-length) might lead to more satisfactory results when dealing with other component parts of the electro-magnetic spectrum.

Within the last few months I have stated elsewhere, " The marked success which followed the use of sheets of lead with radium at once suggested the use of a radium ray of one particular length. Unfortunately, there exists at present no means by which this can be carried out. If,

however, this point is followed up in the other rays of the spectrum, it will be found that in two cases this is actually possible. Of these one case is the hertzian or wireless wave . . . the other case is light." I now find from Mr. T. W. Adams, who has very kindly checked the scientific parts of this lecture, that I was mistaken, and that it is now possible to isolate radiations of any desired wave-length, *i.e.*, approximately monochromatic radiations. At the same time, from a clinical point of view, the isolation of these monochromatic radiations is so difficult as to require an expert, and to produce them in quantities sufficient for clinical work would be extremely costly. From a practical point of view it is only possible to isolate small blocks of individual radiations—those between 7,000 and 4,000 å—and, though it may be urged that these screens absorb all wave-lengths except the one small block and provide us with the means of getting isolated rays of 6,500—6,000 å, 6,000—5,500 å, 5,500—5,200 å, 5,200—4,700 å, 4,700—4,400 å, 4,400—4,100 å, 4,100—å, 3,900 å—(*i.e.*, red, orange, yellow, green, blue, indigo, violet), it will, as a matter of actual fact, be found that, when examined by means of the spectroscope, they are by no means free from mixture ; nevertheless, they are sufficiently uniform in composition for clinical purposes.

This same diagram shows that the radiations produced from different sources overlap. This may give rise to the impression, which I myself once had, that the different types of radiation (*i.e.*, radiations from other sources as gamma rays of radium and short X-rays from a discharge tube) differ not only in their wave-length, but also in other characteristics. The statement in the *Gazette* of 1910, page 482, when a patient was ordered both radium and X-ray treatment, illustrates this idea. It was clearly stated in the *Gazette* of 1908, page 481, that radium, as such, was better for patients suffering from cancer than X-rays, but it was felt that, if the rays differed in other ways as well as in their wave-length, it might conceivably be better to apply both remedies. Hence the treatment of the patient shown at the clinical lecture referred to above. I now learn from Mr. Adams that the radiations of wave-length between, say, 1 å and .6 å units produced by radium and radiation of the same range of wave-length produced by an X-ray tube are alike physically, although they may differ in intensity and by the energy they carry. We now know that some of the so-called cosmic rays, described by Millikan, are shorter still than X-rays, and, as it has been stated that X-rays are not so useful in treating cancer as the γ-rays of radium, which are shorter than X-rays, it might be argued that these cosmic rays, being still shorter in wave-length than radium rays, would be even more effective in their result. At the present time, however, we know very little about them, and no one has, up to now, devised any method by which they can be used clinically.

Hence the necessity of pursuing other paths of investigation. It will be seen from the diagram that the Royal Society has, as is frequently done, compared the different wave-lengths of the electromagnetic spectrum to the musical scale with many octaves. If the analogy be carried further it might be expected that vibrations whose wave-lengths are multiples of each other would show similar properties. The obvious method with which to start an investigation into this comparison is to place one of these screens against a tumour and to hold an electric hand-lamp on the other side of it. This was actually done, and the screen used transmitted waves of 7,000 å in length. After an hour the pain and tenderness of the tumour had definitely diminished, a phenominon resembling in this respect the action of radium and X-rays. It may be remembered that one of the many criticisms originally made against the use of radium and X-rays was that they relieved pain and did nothing else. Actually the relief of pain was the first effect of these agents when they were doing good, but it was many years before it was realised by the medical profession as a whole that this effect was anything more than analgesic. Again, this treatment seems particularly suitable for superficial tumours, as is the case with radium and X-rays. The screens transmitting other vibrations were also used, and, in particular, one of 5,500 å applied to the lower part of the back of a patient suffering from malignant disease, in whom an X-ray examination had shown a growth of the spine, and who was found, later on, again under X-ray examination, to be free from growth.

Light treatment may be given to the whole of the body, covered only with a loin cloth, by exposure to the rays of the sun, as is done at Leysin under Rollier, and at Alton under Sir H. Gauvain, or it may be given in London for surgical tuberculosis by means of an arc lamp which produces a spectrum similar to the solar spectrum. In the same way it is possible to treat localised conditions by applying waves of one particular length isolated by a suitable screen. Light treatment has the effect, which has never been satisfactorily explained, that a patient suffering from tuberculosis of the lungs is more than ordinarily susceptible to its influence. One way of dealing with this susceptibility is to give shorter exposures of light. Another method, which is more commonly adopted, is to give fractional dosage in which one limb or part

of a limb is exposed to light for a short time, the area treated being extended with each dose. It is interesting to note that the constitutional effect produced appears to be exactly the same as when the whole of the body is exposed. This method may be used in many different ways, and I have often noticed that, if the body is stripped only to the waist and the back exposed and a shawl thrown over the shoulders so that only three or four inches of the middle of the chest and abdomen are exposed to the light, just as satisfactory results are obtained in some cases as when the whole of the body is irradiated. The feeling of fatigue which not infrequently follows a full dose of artificial sunlight treatment can easily be reproduced under these conditions.

In dealing with the isolated rays it is only natural that the method of their application should be similar to those methods already in use in actinotherapeutics. There appears to be an analogy between this isolated ray and that of the static machine when the body, behaving like a condenser, is charged with electricity. This charging brings with it a peculiar soothing sensation, and is a good deal used in America where the static machine, owing to the dry atmosphere, works more satisfactorily than it does in London. If the other pole of the static machine is connected with a pointed electrode and directed towards the sciatic nerve, or any other part affected by inflammation, a "static breeze" is produced which is strong enough to blow out a candle, and which exercises a localised beneficial effect on the inflamed area. Similarly, when the body has had a wave of one particular length applied to it, not only is a soothing sensation produced analogous to the soothing sensation of the static machine, but also a draught from a fan directed towards the painful area will lead to a relief of pain.

This is not the only parallel which takes place in the effect of the treatment of two types of etheric waves which differ greatly in their length. The resistance of the body to high-frequency currents may be measured with considerable accuracy, thus differing from its resistance to the constant current. One patient who had had a gastrostomy performed for growth of the œsophagus had an application of 50 mgr. of radium to his back for half an hour. Before treatment the high-frequency resistance was 790 ohms and after treatment 750 ohms. Another patient, suffering from abdominal growth, had four pastille doses of X-rays given him through a lead filter, and before treatment the high-frequency resistance was 620 ohms whereas afterwards it was 550 ohms. This same phenomenon is noticed in the case of rays between 7,500 and 5,000 å, and occurs when rays isolated from the visible spectrum are administered. Thus in one patient suffering from malignant disease, after rays of 5,500 å had been given, the high-frequency resistance, which before treatment had been 810 ohms, was 710 ohms at the end of the treatment. This point, of course, requires a considerable investigation before any exact significance can be attached to it.

In the earliest forms of light treatment the source of illumination was a carbon arc, the spectrum of which closely resembled that of the sun, and for this reason very little, trouble was taken to avoid the admixture of extraneous rays. When any wave-length is produced in a physics laboratory, the experiment has been conducted in darkness so as to cut out all extraneous rays. An infra-red apparatus is now being sold and the directions accompanying it state that better results will be obtained if the treatment is carried out in the dark. In the same way, when this treatment with only one wave-length is used it is far easier to obtain definite results if it is carried out in a dark room, which confirms the conclusions arrived at by physical observation.

Combined Meeting of the Physical & Physiological Societies

I.—THE PHYSIOLOGY OF HEARING

By Mr. R. S. Vine

MR. CHAIRMAN and GENTLEMEN,—The considerations of the mechanism of the cochlea, the organ of hearing, necessarily encroach on alien grounds of anatomy and physics. It is a dispiriting business exhuming one's long-forgotten ideas on sound, resonance, bouncing paper riders and so on, which many of you, no doubt, were lucky enough to possess in days gone by. I will attempt to give you an idea of the modern conception of this important sensation, hearing, and a brief outline of how this conception was arrived at.

It will be necessary, I am afraid, to consider the anatomy of the cochlea in some detail in order to understand better the working principle.

According to anatomists, then, the cochlea consists of a bony tube, $1\frac{1}{4}$ inches long, arranged spirally round a central core, the modiolus, for $2\frac{3}{4}$ turns. It is partitioned into an upper and a lower division by a bony spiral lamina projecting from the wall opposite the lamina, and a basilar membrane stretched between the two.[1] The upper division is further divided by the thin epithelial membrane of Reissner into a smaller

triangular-shaped cochlear canal filled with endolymph, and a larger canal known as the scala vestibuli because it is in direct communication with the bony vestibule at the base of the cochlea. The division of the spiral tube below the basilar membrane partition is called the scala tympani because it would communicate with the tympanum at the base of the cochlea through the foramen rotundum (round window) were it not that the latter is closed by an elastic membrane. The two scalæ, which are filled with perilymph, communicate through a small opening, the helicotrema, at the apex of the cochlea. The foramen ovale (oval window), closed by a ligament and the foot-plate of the stapes, communicates with the scala vestibuli at its base where it is continuous with the bony vestibule.

The basilar membrane is the important structure concerned with the reception and estimation of sound waves. It consists of over 4,000 fibres arranged radially from the lamina spiralis to the spiral ligament and the fibres are loosely connected to one another to form a continuous sheet. It increases gradually in breadth from the basal turn of the cochlea to the apical turn, the increase according to Keith being from 0.17 mm. to 0.4 mm.; that is to say, less than a threefold increase.[2]

The thickness of the fibres also increases slightly from the basal to the apical turn. On the side of the basilar membrane lining the cochlear canal is the organ of Corti consisting of some 4,200 pairs of inclined rods, each pair enclosing an arch. A single row of about 3,500 hair-cells is situated inside the arches and four rows of about 5,000 hair-cells each surmount an equal number of Deiter's rods situated outside the arches.[3] The hairs of these cells are embedded in a homogeneous gelatinous membrane, the tectorial membrane, stretching from the upper edge of the osseous lamina spiralis to the hair-cells.[4] Fibres of the cochlear nerve ramify at the base of these hair cells. It can be assumed, therefore, that stimulation of the hairs will arouse a sensation of sound in the mind. Movements of either the tectorial membrane or the basilar membrane will stimulate the hairs and give rise to this sensation.

Sound-waves are conducted from the external air to the scala vestibuli by the ossicles. The malleus and the incus resemble an inverted V rigidly articulated at the apex. One limb, corresponding to the handle of the malleus, is attached to the tympanic membrane and the other to the head of the stapes. Hence when the tympanic membrane is pushed in, the head of the stapes is also pushed into the foramen ovale. The perilymph in the scala vestibuli tends to be compressed, but the wave of compression is communicated to the basilar membrane and that covering the foramen rotundum, which bulges out into the tympanum.[5] The movements of the membranes covering the foramina ovale and rotundum are, then, opposite in character. The one bulges out when the other is pushed in. In man and other primates a fine, capillary-like duct, the aqueduct of the cochlea, leads from the floor of the scala tympani near the foramen rotundum to the cranial cavity, connecting the perilymph with the cerebro-spinal fluid. A certain slight amount of compensation for variations in pressure of the perilymph takes place along this duct, but considerably less than in the case of birds and reptiles, in which the duct is of a wider bore.

The nerve supply of the cochlea is an important question which must be considered. Fibres from the hair cells pass through the centre of the osseous spiral lamina to cells in the spiral ganglion of the cochlea immediately opposite to them. The spiral ganglion is contained in a small spiral tube, situated just deep to the attached edge of the osseous spiral lamina. From this ganglion second order relays arise and pass through the foramina of the tractus spiralis foraminosus at the base of the modiolus to form the cochlear nerve. The hair cells are connected not only with nerve cells in the ganglion immediately opposite, but also with nerve cells a considerable distance above and below this point.

I think now it would be advisable to consider some physiology.

The idea of the cochlea acting as a resonator dates as far back as 1761, when an Italian, Cotugno, published a book in which he described the spiral lamina, the spiral fissure and the basilar membrane which he noted varied gradually in width from the base to the apex of the cochlea. He described the perilymph, and suggested that its function was to preserve the pliability of the various vibrating parts of the cochlea, and ascribed to the basilar membrane the property of vibrating "like the strings of a lyre" at different levels, in unison with vibrations of sound in the air. Thus the resonance theory of hearing was definitely formulated.

The conception of the cochlea as a resonator, however, will always be associated with the name of Hermann von Helmholtz, for it was he who put the idea on a sound scientific basis with his profound knowledge of mathematics and physics. According to Helmholtz, the basilar membrane consists of a series of fibres tensed in a radial direction, from the osseous spiral lamina to the spiral ligament, but possessing no tension in a longitudinal direction, passing up and down the cochlea. He utilised the fact of the gradual

increase in length of the fibres from the base to the apex of the cochlea in suggesting that there was a progressive difference in vibration frequency of the basilar fibres; at the base, where the fibres were short, the proper pitch of the fibres would be high, whereas the pitch would be low at the apex where the fibres were longest. Helmholtz was apparently unaware that the tension of the fibres progressively diminished from the base to the apex. This fact was first pointed out by Gray in 1900.

Thus two factors are present which regulate the pitch of a vibrating cord, tension and length of the fibres. According to physicists, however, three factors govern the frequency of a vibrating cord. Frequency varies inversely as the length, directly as the square root of the tension and as the square root of the mass of unit length. That the third factor, mass, also influences the basilar fibres has been conclusively demonstrated by Wilkinson. Helmholtz recognised, however, that this factor must have some effect in controlling basilar vibrations, for he wrote: "That such short strings should be capable of corresponding with such deep tones must be explained by their being loaded in the basilar membrane with all kind of solid formations; the fluid in both galleries of the cochlea must also be considered as weighting the membrane, because it cannot move without a kind of wave motion in the fluid."

The loading of the basilar membrane can be compared to the loading of the bass strings of a piano with copper wire. The wire is wrapped closely and evenly round a steel core in such a manner as not to increase its stiffness, alter its vibration, or set up independent vibration between it and the copper wire enveloping it. The basilar fibres are closely and evenly loaded by a mass of cochlear fluid which moves with them. Suppose a note near the middle of the scale be struck. The vibrations cause the tympanic membrane to vibrate, and each inward and outward excursion of this membrane cause a corresponding movement of the stapes which in turn communicates its movement to the perilymph. A column of fluid in the scala vestibuli, extending from the oval window to some point roughly in the middle of the basilar membrane whose frequency of vibration exactly corresponds to the exciting tone, will vibrate, and another column, extending from the same portion of the basilar membrane to the round window, will also vibrate.

It is to be noticed that the membrane of Reissner, since it is so thin and flexible, is assumed to pass sound-waves very readily, so that from a dynamical consideration the cochlear canal and scala vestibuli are regarded as a single chamber filled with fluid.

The vibrations of the basilar membrane stimulate the hair-cells and thus a sensation of a musical tone is aroused in the consciousness.

This conception of the cochlea seems delightfully simple and straightforward, but there are many objections. The cochlea differs from any known form of resonator, in three essential details:—

(1) The minuteness of its scale.

(2) The basilar fibres are not free strings, but are embedded in a mass of cells to form a continuous and extended membrane.

(3) The fibres are immersed in fluid.

1.—*The minuteness of scale.*

Theoretically this is unimportant in so far as the capacity of the resonator to respond to any required frequency is concerned. The chief stumbling-block is the fact that it is difficult to conceive a stringed instrument on the same scale as the cochlea and possessing a wider range and finer graduation of tone than any of our ordinary orchestral instruments. The cochlea occupies a volume of about one-sixth of an inch cubed, it responds to about 11 octaves and is capable of recognising over 4,000 separate notes within that range. A piano, our most elaborate stringed instrument, responds to seven octaves containing 12 tones in each and 85 in all. It occupies a space of from 10-16 cubic feet and weighs several hundredweights. The longest string in the cochlea, at the apex, is about $\frac{1}{2}$ mm., and yet it is capable of vibrating sympathetically with a note an octave and a half below the lowest note of the piano.

2.—*The fibres form a continuous membrane.*

The continuity of the fibres in the form of a watertight membrane is a mechanical necessity in the cochlea, for otherwise the loading by fluid columns would be an impossibility. Even if the fibres were separated, however, it is doubtful if resonant vibration would be any more definitely localised. According to physicists there is always a "spread of resonance" of greater or less extent round a "maximum point." That is to say, a particular fibre of the basilar membrane whose frequency exactly corresponded with the exciting tone would vibrate with a maximum amplitude, and fibres on either side of it for a variable distance up or down the cochlea would also vibrate with a progressively decreasing amplitude from the central one.

3.—*The basilar membrane is immersed.*

This fact is the key to the problem of the mechanism of the cochlea. As already stated, Wilkinson pointed out that the fluid constituted the third factor, mass, in controlling the vibration frequency of the basilar fibres. Not only does it do this, but it also provides a mass much greater in proportion to the length and tension of the

fibres, so that it does not matter how minute the tension or length of the fibres may be, provided the mass is very much greater in proportion. On this principle there is no reason why we should not have a cochlea 100 times smaller given suitable materials.

If the resonance theory which has just been outlined be correct, it should be possible to reproduce, in the form of a practical demonstration, a model agreeing in all mechanical respects with the actual organ. The model must of necessity be very gross compared with the exceedingly delicate details of the cochlea, but the mechanical principles should be reproduced.

Several experimenters have devised models which illustrate one of the three factors governing the frequency variation along the basilar membrane. McKendrick's model demonstrated the variation in tension factor; Stefanini's model the differentiation in length factor; Roaf's and Lux's models showed the influence of the fluid columns in loading the fibres; Ewald's model, the "acoustic camera," demonstrated nothing in particular, but to Wilkinson belongs the credit for devising a model which illustrated all three factors.

The model consists of a brass box with a glass top; a horizontal brass plate, with an elongated trapezoidal-shaped "basilar fissure" in the centre of it, divides the box into an upper and a lower chamber. The upper chamber represents the scala tympani and has a "foramen rotundum" closed by a rubber membrane. The lower chamber corresponds to the scala vestibuli and cochlear canal. It possesses a "foramen ovale" closed by a wooden plunger, the "stapes." The basilar fibres consist of phosphor-bronze ribbon, 1/80 mm. thick. By reason of the shape of the fissure, they are progressively differentiated for length, and the tension is also graduated, by means of weights. The greatest care is taken that all the fibres should be evenly spaced. A fine film of cigarette paper soaked in formolised gelatin is plastered on both sides of the fibres. The heticotrema consists of a semicircular opening at the end of the fibres. The shortest fibres are closest to the foramina, where the fluid loads are least. The box is filled with water containing a trace of formalin to keep it sterile.

Finely-powdered coloured glass or enamel is strewn over the membrane so that by observing the behaviour of the powder one can obtain some idea which part of the membrane is vibrating. The powder collects in little heaps at the portion which is undergoing the greatest vibration (*i.e.*, at the antinode).

In order to elicit a good response, it is necessary to use a heavy tuning fork and apply the heel to the wooden plunger. The pictures show the responses of the membrane to notes of different pitches.

Other theories have been advanced by physiologists who disagreed with the resonance hypothesis of Helmholtz. The main drawback to the hypothesis was that since a number of fibres were stimulated by one note, that is, the fibre undergoing maximum vibration plus the fibres vibrating on either side of it, we should hear, more faintly, notes a little higher and a little lower in pitch. Gray explained this point, however, fairly satisfactorily by the principle of maximum stimulation. This fact shows clearly that if one is strongly stimulated at a point, for instance, if a sharp instrument is pressed on the skin, the resulting sensation is—a most astonishing thing!—that one is aware of sensation only at a point. And yet on observing the place of stimulation, it can clearly be seen that a considerable area round about is anæmic and undergoing quite an appreciable stretching, obviously stimulating nerve endings in that area. Yet one is conscious of stimulation only at that particular spot into which the implement is pressing.

The same principle applies in the case of the cochlea. The mind registers the vibration of the fibre of the maximum amplitude only, and ignores the fibres on either side in so far as recognising their frequency and being conscious of extra notes. These fibres do, however, serve a purpose in reinforcing, as it were, the amplitude of the principle fibre. For, if a very loud note is struck, the amplitude of the fibre vibrating homorhythmically with it becomes so great that it drags up and down with it quite a large number of other fibres on either side. Consequently, the louder the note the greater the number of fibres affected, and thus we are able to appreciate loudness and softness of tones.

The quality of a note depends on the harmonics or upper partials. We are able to distinguish between middle C of an organ and of a violin merely by the different portions of the basilar membrane affected by the fundamental note and its harmonics.

To return to the principle of maximum stimulation; we find it provides a very reasonable explanation of the difficulty with regard to the recognition of notes of high pitches, for example, 20,000 vibrations per second. It has been shown, by Adrian and others, that nerves cannot conduct impulses more frequently than, at most, 400 per second. The brain is made conscious of high frequencies by the position along the basilar membrane, of the fibre undergoing maximum vibration. When a fibre in the basal turn of the

cochlea is affected by a high note, the brain recognises this fact by locating the spot in exactly the same way as we locate a mosquite-bite on our skins.

When a large portion of the basilar membrane vibrates and the mind is unable to recognise any point of maximum amplitude, the sensation aroused is termed a noise. The brain in such a case is unable to analyse into their constituent parts the movements of the basilar membrane.

The question of music is a very interesting and comprehensive one. Many theories have been advanced regarding our appreciation of harmony and melody. It might well be asked, "Why do we appreciate a chord yet dislike a discord?" "Why do we recognise graduations in a scale such as thirds, fifths or octaves?"

The answer to the second question most probably lies in the fact that there are no pure notes in Nature. A note consists of its fundamental and certain harmonics, one of which is invariably the octave of the fundamental. That is, if middle C, 256 vibrations per second, is sounded, higher C, 512 vibrations per second, is also present. At least two separate portions of the basilar membrane are vibrating. The brain is informed of this, and consequently, when a note of 512 vibrations per second is sounded, the brain recognises that in some way this note is related to the 256 d.v. note. Similarly, the next octave, 1,024 d.v., is recognised as bearing a definite relationship to the note of 512 d.v., and, consequently, to the note of 256 d.v. Thus the basilar membrane becomes graduated like inches on a tape-measure. This is probably what occurred in the early stages of the evolution of music.

The next division on the basilar membrane to emerge was presumably a fifth, as this forms the second upper partial of the fundamental, the octave being the first. This was probably followed by a fourth and then by the major third. Hence the octave would become subdivided.

According to one authority (Ellis) there is a "predominance of the fourth, and mere evolution of the fifth, in Greece, Arabia, India and Japan." This seems contrary to the idea that the fifth evolved before the fourth, but, curiously enough, the Greeks preferred to go down the scale in music. Aristotle asked, "Why is it more agreeable to proceed from a high pitch to a low pitch than from a low pitch to a high pitch?" In the descending scale the natural step down would be a fourth, that is, a fifth up. It may be that the music of ancient civilisations was mainly down scale like our present-day form of chiming church bells.

The question of chord and discord is not so easy to answer. We appreciate a chord presumably because it corresponds with the graduations of the cochlea. A chord serves to reinforce the harmonics of a note, and the brain readily recognises the relationship existing between them. I imagine that it is only because of an old habit which has become firmly established with the evolution of man's musical taste that chords are appreciated. We are far too conservative to break away from conventions existing for thousands of years. There is, however, a peculiar set of people, designated by the press as "the bright young people," who delight in enthusiastically supporting anything weird and exceptional in any branch of art, especially music. We can imagine such persons soulfully enraptured by the erudite discords of Scriabin or Arnold Schonberg! It may be that future generations will enjoy ear-splitting cacophony in the same way as present-day physiological human beings are charmed by the simple and delightful melodies of Mozart, Haydn, Schubert and all the other great masters.

Apart from the resonance theory of hearing, three others have been put forward, but they appear very unconvincing compared with the resonance hypothesis.

One compares the basilar membrane to a telephone receiver and assumes that the membrane vibrates as a whole, executing faithfully the intricate variations in pressure transmitted to the cochlea by compound sounds, and consequently the nerve is supposed to carry to the brain all the phases and variations manifested by the membrane, and the acoustic centre is allotted the business of sorting out and analysing each impulse.

This has been dubbed the "telephone theory," and was first proposed by Rutherford in 1886. It is impossible from a mechanical and physiological point of view. No elongated membrane, differentiated in width and tension, could vibrate as a whole in response to oscillatory impulses, and even if it did it has been shown, as stated before, that impulses cannot travel to the brain more rapidly than 400 per second. The limits of audibility lie between 30 and 24,000 d.v., approximately, and the telephone theory expects the nerve to conduct the impulses with a corresponding range of frequencies.

Another theory has been designated the "pressure pattern theory." It was proposed by Waller in 1891 and elaborated by Ewald in 1903. The basilar membrane was supposed to respond to a tone by the formation of "standing waves" along its length, and these waves assumed a particular pattern for each pitch. This theory is at complete variance with the idea that the basilar

membrane responds by localised vibrations at particular levels. Experimental evidence in support of the theory was brought forward by Ewald in the form of this "acoustic camera," which, as already mentioned, demonstrated nothing in particular as it misrepresented the mechanism of the cochlea in every respect. Not only is the theory doubtful from a mechanical point of view, but it also clashes with a fundamental law of physiology formulated by Muller in 1840—the specific conductivity of nerves. The theory assumes that stimulation of a number of fibres in a certain combination gives rise to a characteristic tone of definite pitch, and stimulation of the same fibres in a different combination causes a different note of some other pitch to be recognised by the consciousness.

Yet another theory held popularity for a time, and probably still does so. It has been called the "travelling bulge theory." Each inward thrust of the stapes is supposed to cause a bulge on the basilar membrane. The bulge bulges into the scala tympani and travels along the membrane towards the apical end of the cochlea. When the stapes is withdrawn from the foramen ovale, the bulge suddenly becomes reversed and travels back to the base of the cochlea again.

The pitch is recognised by the distance the bulge travels. The theory is purely a speculative one. It is extremely doubtful if a bulge could travel along a membrane progressively differentiated for length, tension and mass like the basilar membrane.

Some American physiologists, notably Hardesty, Shambaugh and others, believe that the tectorial membrane and not the basilar membrane vibrates sympathetically in sections according to the pitch of incoming notes. This theory fills one with suspicion, because if the tectorial membrane vibrates, why is Corti's organ, an elaborate protective mechanism admirably constructed to preserve the delicate nerve filaments and hair-cells against possible damage during vibrations, placed on the basilar membrane? Besides this, the tectorial membrane is not well placed for responding to vibrations conveyed through the endolymph. As stated in the earlier part of this paper, the tectorial membrane (according to Gray) consists of a homogeneous gelatinous substance, and this does not readily lend itself to the conception of responding at different levels to notes of different pitches.

So much for other theories!

Much work has been done recently, and is still in progress, at the Research Laboratories of the Bell Telephone System. Many interesting facts about acoustics have come to light, especially in the relations between sound and electricity, facts which have lighted the way to perfect electrical recording of gramophone records and to talking pictures. Many facts of great interest to physiologists regarding the cochlea have also come to light, but they are mummified by swathes of complicated electrical apparatus and abstruse formulæ which chill the heart of a mere student of physiology! They are to be found in Harvey Fletcher's book, "Speech and Hearing."

In conclusion I beg you to reflect on the beauty and intricacy of design of Nature's perfect piece of mechanism, the cochlea. Spare a moment to contemplate the faithfulness with which the structure of the organ reflects the function!

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II.—MODERN METHODS IN THE TREATMENT OF DEAFNESS

By Mr. H. J. B. Atkins

MR. CHAIRMAN and GENTLEMEN,—The treatment of deafness of almost every form is a branch of otology, which even at the present time is in its very infancy; there is probably no part of this aspect of medicine which has made so little progress, but which has been exploited to such effect by the charlatan and the quack. Deafness has been known for many thousands of years: in the book of Leviticus we find references to it in a reproof which is curiously applicable to-day: "Thou shalt not curse the deaf," and yet only a few years ago Sir William Wilde stated that "there are two kinds of deafness, the one which is due to wax and is curable, the other is not due to wax and is not curable." According to this we are persuaded to believe that the only advance made in the alleviation of this complaint in a thousand or more years is to remove the wax from a blocked meatus. It is to confute the expression of such a stagnant philosophy that the subject for this paper was chosen.

It seems that the little advance made by otologists in this direction is referable, at least to a large extent, to a concentration upon the problem of

the ætiology of deafness. It cannot be too strongly urged that ætiology is not the parent of therapy, nor is the empirical process, if properly controlled, unscientific. Quinine was used as a specific in malaria long before Ross's discovery that the mosquito is the carrier of the plasmodium, and the pursuance of these problems to the neglect of direct experiment upon treatment must prove a long and laborious process if, indeed, it is ever to achieve its object. Such a circuitous method calls to mind the truth of the poet's saying :—

" Myself when young did eagerly frequent
Doctor and Saint, and heard great argument.
About it and about, but evermore came out
By the same door as that wherein I went."

As Professor Blair Bell has put it, " Our central problem was not the cause, but the arrest and cure."[1]

Let us now consider the problem with which we have to deal. The causes of deafness are so many and diverse that it would be outside the scope of this paper to deal with them all. On that account reference will only be made to those forms which are dealt with in connection with treatment, so that causes of deafness arising in the external auditory meatus and tympanic membrane will be excluded ; further, the inflammatory as opposed to the catarrhal conditions of the middle ear will only receive brief mention, and deafness arising in the internal ear will be considered together with nerve deafness.

Hunter Tod[2] describes inflammation of the middle ear as being " sudden in onset, its course is rapid and acute, but there is a tendency towards complete recovery without relapse " ; it is clearly not here then that our chief problems are to be found. At the same time it is emphasised that there is no sharp distinction to be drawn between these two affections ; catarrh may flare up into inflammation, or inflammation subside into catarrh.

With catarrh " the process is a gradual one, running an indefinite course without any very marked symptoms, tending to resist treatment and, if temporarily cured, to relapse." In acute catarrh the deafness is very variable from case to case, and in the same case at different times. For no apparent reason the hearing becomes suddenly more acute or very much worse. There is often in addition tinnitus or buzzing in the ears, which may be of cerebral origin or, if we are to believe Bruning and Forster, is due to an angiospasm,[8] and autophonia (or an unpleasant resonance of the subject's own voice in his head). The appearance of the membrane is variable and may be indrawn or bulged, depending upon the amount of fluid within the middle ear.

Chronic catarrh is a progressive disease characterised by a general thickening of the mucous membranes ; it may result from a previous acute catarrh with possibly adhesions binding the tympanic membrane to the inner wall of the tympanic cavity. Lastly, there is the so-called chronic dry catarrh—or otosclerosis.

It is this last disease which, from the point of view of treatment, presents us with the most difficult and at the same time the most interesting problems, and it would on that account be advisable to inquire a little more closely into the ætiology and pathology of the condition.

The term " otosclerosis " has the advantages and disadvantages of flexibility ; as its meaning is not clearly defined it probably covers a large number of pathological forms, but its clinical definition is comparatively clear. It is a disease characterised by a chronic progressive deafness, generally with a strong hereditary factor, associated with tinnitus often referred to the head itself, with paracusis Willisii or the capacity for hearing better in a noise, and in which very few changes can be made out on examination of the tympanic membrane. There are, in addition, characteristic variation in the upper and lower limits of hearing, an absence of wax from the external meatus and the crescentic outline of the promontory seen through the tympanum, which with other minor points establish the diagnosis.

That heredity is the main factor is shown by Gray,[3] but he also postulates an additional factor—either anæmia, syphilis or some other cause which renders this latent predisposition apparent. The essential pathological lesion in the disease is a fixation of the foot-plate of the stapes inside the oval window so that it is unable to respond to vibrations, an effect brought about by a pathological condition of the bone around the window. This diseased bone is remarkably circumscribed, and Gray suggests that the reason why only this part of the organ of hearing is affected and not the semicircular canals is that this part is phylogenetically one of late development, and is, therefore, particularly liable to spontaneous biological variations. He postulates in order to overcome the insuperable difficulty that heredity can never be the ultimate cause of any disease, that every now and then an individual is born with, as it were " out of the blue," a disposition to contract the disease—a true biological variation, or, in the racy jargon of the biologist, a " sport." In his many post-mortem sections from cases of this disease he has evolved a very complete pathology of the condition. He finds in many cases an osteoporosis affecting the bone around the oval window, the osteoblasts are plumper and

rounder, and the whole area stains more deeply with hæmotoxylin. There are none of the classical signs of inflammation and no small round-celled infiltration. Sometimes the stapes is firmly bound down by a bony union, at others it lies within a groove in the oval window, depending upon the stage of the disease. In addition, there is a thickening of the muco-periosteum around the part and in the later stages an osteosclerosis.

Bruhl explains the incidence of the disease in this locality as being due to the proximity of the tensor tympani, which plays over the bone adjacent to the anterior part of the oval window and excites that slight irritation or trauma which is the preface to so many bone affections. Gray, however, is at pains to explain that the disease is one of the whole auditory apparatus from the external auditory meatus to the cerebral cortex. He attributes the tinnitus to pathological changes in the neurones of the cortex, and he draws attention to the insensitivity of the tympanic membrane in this condition, and to the diminished secretion of wax in the external auditory meatus. He suggests that the failure of treatment is largely due to confining research to the bony changes, without sufficient study of the pathology of the auditory apparatus as a whole.

Other symptoms which may be encountered in any chronic catarrhal condition of the middle ear are hyperacusis, in which sound falling on the ear actually causes pain, and diplacusis, in which "music produces a disagreeable sensation, the notes being heard half a tone too high or too low by the affected ear."

It will be unnecessary to mention those forms of treatment dignified by inclusion in the text-book. It may be said at once that none of them are spectacular, and none particularly efficacious. If the "heretical" methods presently to be described effect no more, they at least excite our admiration for their ingenuity, and in some for the operative dexterity which must accompany their performance.

In general, the treatment is to keep the patient in as good health as possible and to administer purges to relieve the congestion. In cases of otosclerosis, Gray urges that the underlying condition should be studied; in many cases he has achieved quite remarkable success in the restoration of hearing, by treating the anæmia, the intestinal sepsis, or the pharyngeal, tonsillar or dental condition which may be aggravating it. He maintains that "the man 'who does himself well' most emphatically does himself ill," and that simple diet and the avoidance of undue exertion are to be aimed at. He considers that the harmful effect of pregnancy is inclined to be over-rated, and sums up the situation by saying that some cases are hopeless, in some the arrest of the disease is possible, and in some an improvement may be effected.[4]

. . . .

It must be for some time now that most of us have confused those "gemini," Rinné and Weber, and I myself have evolved a mnemonic for their distinction which I should hesitate to reveal on this occasion. There are, however, other and more homely tests for distinguishing nerve from middle-ear deafness. In nerve deafness the low tones are heard better than the high, whereas in middle-ear deafness the high tones are heard better than the low. Thus high-toned words such as "sister," "surgeon" and "ship" are heard better than the low words "robber," "rupture" and "rock" in middle-ear deafness, whilst the reverse obtains in nerve deafness. Lastly, if a watch can be heard over the mastoid there is no nerve deafness, whilst in internal-ear deafness there is no paracusis Willisii. As these two forms of deafness are often associated in the same patient, the value of these tests is sometimes inconsiderable.

To turn now to the treatment of these conditions: the first method to be dealt with is mentioned only to be condemned. At the same time it illustrates a number of ingenious theories, and serves to indicate the degree to which a method of treating deafness may capture the popular imagination, so willing are the sufferers to meet the surgeon half-way and to insist that their hearing has improved when no permanent result has been achieved.

The method referred to is the one advocated by Heath,[5] and consists in applying caustics to the drum. The treatment is designed to alleviate the deafness of those who suffer from paracusis, and to bring their degree of hearing permanently up to that point at which they hear in a noise. It is, however, founded upon a theory of paracusis at variance with all accepted teaching on the subject.

Heath describes a test for paracusis wherein the subject hears the ticking of a watch better when a tuning fork is placed upon his forehead, and suggests that this result is effected by a reflex protective reaction of the tympanic muscles. He maintains that paracusis is not, as is supposed, due to a tightening and relative immobility of the joints of the bony ossicles, but is, indeed, the reverse—a loss of tone of the muscles of the middle ear and an abnormal flaccidity of the inter-ossicular articulation. He maintains that, were the former hypothesis true, continuous inflation must tend to make these joints relax and effect some degree of improvement, but no improvement is found in these cases with inflation. He con-

siders that noise, far from vibrating the stiffened joints and rendering them more mobile, tends to increase the reflex action of stapedius muscles, and so increase the tension on the oval window, facilitating vibration and hence the transmission of sound. He cites three experiments which he claims tend to prove this. The first is the passive congestion test; the body and head are bent forward so that the blood rushes to the head and renders the structures in the middle ear relatively tense. Under these circumstances he claims that the paracutic will hear better. The active congestion test is similar, but the congestion is produced by exercise. The third test is particularly ingenious. The stapedius muscle is supplied by the facial nerve, and, although it is practically an involuntary muscle, some degree of contraction can be brought about voluntarily by strongly contracting the upper facial muscles, particularly orbicularis oculi. Without wanting to establish a tic in the members of the audience, it may be said that when the eyes are screwed up very tightly there is certainly a sensation of sound and of tension in the ear. This, according to Heath, is due to the contraction of stapedius muscles. When stapedius is toned up in this way the hearing is improved.

The treatment elaborated by Heath has for its object the tightening of the structures within the middle ear. This is done by applying caustics to the tympanic membrane and attempts to induce an inflammation to spread over the mucous membrane of the middle ear which, with subsidence, will produce fibrosis and contraction.

Heath claimed to have produced excellent results with this course of treatment, and his enthusiasm was shared by his patients, but Gray has made very careful measurements of the hearing of patients before, during, and after the treatment, and has come to a very different conclusion. During the treatment and whilst the inflammatory phase lasts the hearing is very much impaired, a contingency which is explained to the patient before commencing the treatment. After the inflammation has subsided the patient's hearing returns to the same value as before the treatment was begun, but since he has been suffering from very much diminished hearing for so long, he has forgotten how well he could originally hear, and is delighted at the improvement. In no single case treated by Gray by this method was there any improvement whatever—it is a true case of being made worse to be made better.

With regard to the re-educative processes, it has long been known that deaf people forget how to hear, and if an improvement is made in their hearing as measured by the watch, they frequently benefit in no way by this improvement as their capacity to hear conversation is no better. Under these conditions we are justified in assuming that the sound waves are registering with greater force than formerly, but the fault lies in the interpretation of these sounds. The re-educative process aims at recapturing these lost mental faculties, and also at bringing bone conduction up to a high pitch of efficiency.

The method is not a new one, and was, indeed, first practised by Archigenes in the first century A.D.; he claimed that by exercising the ears of the very deaf with loud noises the intensity limit of their hearing was gradually improved, and it is upon this basis that all re-educative processes have been founded. This method was practised with a varying degree of success by Itard and Ernaud in the nineteenth century, and has recently been revived by the use of an instrument elaborated in Paris by Zund Burguet and known as the electrophonoide. This instrument consists essentially of an electrical apparatus and a keyboard to which is attached a pair of ear-phones. By varying the controls on the keyboard, variations in the sounds in character, pitch and intensity may be effected, the object of the instrument being to simulate the whole gamut of the human voice, thus giving the requisite physiological stimulus to the ear.

Now, as pointed out by Cathcart, who is the protagonist of this method in this country, we have here not a gross machine for making noises, but a delicate physiological instrument in which the personality and skill of the operator must back largely the success of the experiment. It is like, he says, the ostler who complained of the ladies who came to his stable: "They come 'ere and they says, 'My eye, this is an 'oss and it must go.'" To achieve good results with this method—in fact, to achieve any result at all—a considerable degree of skill is required in its operation.

This view, of course, renders Cathcart's position pretty secure. When other experimenters use the machine and fail, as they have done, to achieve any result at all, he can always point to their lack of skill in its usage and attribute the failure of their experiments to this. On the other hand, in support of this method Cathcart has published a very full and detailed account of the patients treated by him, which almost compels us to assume that in many cases there is some benefit to be derived from the treatment. He quite plausibly maintains that, since the re-education aims at improving the hearing for the human voice, it is with the human voice that tests of improvement must be made. Now this naturally lays the method open to abuse, as his detractors maintain that it is

impossible for an enthusiast to control the intensity of sound emitted by speaking and whispering before and after the treatment when attempting to establish the validity of his own method. He himself relates the story of the slightly deaf doctor who took his patient to be treated for deafness. Before the treatment began a voice test was performed in such low tones that the doctor himself could not hear what was being said, whereas after the treatment was over the aurist fairly shouted in the patient's ear. On which the doctor said: "It is a wonderful treatment, sir, because not only has it made my patient hear better, but it has made me hear better."

Cathcart, however, has studied voice production, and he claims to be able to keep his voice at a constant pitch and intensity. It is, of course, arguable that such a claim is untenable, and, although we accept this, we find that his results in a large number of cases are such that a certain credit must be given to the effects of treatment.

The treatment consists of thirty sittings of five minutes each, and if at the end of 12 sittings there is no improvement the treatment is abandoned. Cathcart says that "there is a factor in deafness as yet unrecognised, the presence of which, or it may be the absence of which, determines the result."

Now nerve deafness may be broadly divided into primary nerve deafness and deafness due to a secondary atrophy, or atrophy of disuse. In this last type of deafness the prognosis *a priori* would seem with this method to be more hopeful. Cathcart does not distinguish between the two, but classes all cases of nerve deafness together.

Of the 34 cases of nerve deafness treated by him five showed no improvement, and of the remainder I have selected four cases at random :—

	L.E.		R.E.	
	Voice	*Whisper*	*Voice*	*Whisper*
D. R. (12, F.)	ft.	ft.	ft.	ft.
B.T. ..	2	0	2	0
A.T. ..	15	0	15	0
G. F. C. (23, F.)				
B.T. ..	13	1	15	2
A.T. ..	40	1	40	6
G. H. (49, M.)				
B.T. ..	3	0	2	0
A.T. ..	20	0	8	0
A. K. (50, F.)				
B.T. ..	14	0	16	0
A.T. ..	30	1	35	2

Out of the 27 cases of chronic otitis media, ten showed no improvement; of the rest the two following are examples :—

	L.E.		R.E.	
	Voice	*Whisper*	*Voice*	*Whisper*
B. L. (28)	ft.	ft.	ft.	ft.
B.T. ..	2	0	8	0
A.T. ..	10	2	15	0
H. R. (43)				
B.T. ..	3	1 in.	13	1½
A.T. ..	30	1 ft.	40	3

Out of the 32 cases of otosclerosis, 14 showed no improvement. Two women patients were told that if they became pregnant their deafness would be much worse, and in neither case did pregnancy have this effect when they were treated by this method during its course. In most cases the tinnitus was improved or abolished.

	L.E.		R.E.	
	Voice	*Whisper*	*Voice*	*Whisper*
J. D. (31, F.)	ft.	in.	ft.	in.
B.T. ..	1	0	7	0
A.T. ..	5	1	15	6
W. W. (40, F.)				
B.T. ..	1	0	1	0
A.T. ..	6	0	20	6
G. (45, F.)				
B.T. ..	1 in.	0	4	0
A.T. ..	6 „	0	20	0

Out of the whole series, 68 per cent. improved. All had been told by more than one otologist, usually by a large number, that nothing whatever could be done for them, and in no case was any other type of treatment attempted during the course of the experiment.

Gray is not very sanguine about the success of this method, which he says is no improvement upon the old re-educative methods, but he seems to have had a limited experience. More personal experience with the instrument has been disappointing; only about 2 per cent. have definitely improved, and these were cases of long-standing deafness where the treatment might be supposed to have encouraged the patients to listen rather than to have improved their hearing. As has been mentioned, such a result is quite possibly due to an inability to use the instrument to its full advantage. Certainly the aurist who furnished me with these results said that he had come to the conclusion that the instrument was of very little value and "only used it when all else had failed"; this is hardly a fair test of any method.

We come now to the surgical treatment of otosclerosis. Since Professor Siebermann inveighed against surgery in this condition in the early part of the present century, very little attempt has been made in this direction, until interest in this method of attack was stimulated

in this country by Jenkins. Lately, Maurice Sourdille described an operation before the otological section of the Royal Society of Medicine which promises interesting results.[6] It seems that the rationale of the operation is twofold. First, in otosclerosis it is supposed that there is a pathological condition of the labyrinthin fluid either in constitution or in pressure, and second, that since the bony chain is incapable of transmitting vibrations to the labyrinth another path must be made. The operation is conducted under local anæsthesia and is in two stages. The first stage consists in the exploration of the middle ear and its isolation, the second in opening the labyrinth through the external semicircular canal and occluding the fenestration so made by an epidermal membrane, thus manufacturing an artificial internal drum.

The first operation in more detail consists of mastoid trepanation and of resection of a small part of the external wall of the attic and part of the tympanic ring. In this way a good view of the middle ear and of the ossicles is obtained. The body of the incus is then removed. The isolation of the middle ear from the mastoid region is effected by cutting a flap from the posterior superior wall of the membranous canal and folding this over the entrance to the tympanic cavity. By the adhesion of this flap the middle ear is hermetically sealed from the mastoid wound and the spread of infection from the middle ear to the inner ear during the second part of the operation is obviated.

The second stage is undertaken two months later. The retro-auricular wound is re-opened and a flap is cut from the outer wall of the labyrinth, which, when folded over, will cover the window to be made in the projecting part of the external semicircular canal. The trepanation of this protrusion is effected by rubbing with special rubbers, and the flap is then folded across the window so made and kept in place by pressure.

It has been found that after the first operation itself there has sometimes been an improvement in hearing, though why this should be is difficult to explain. The conditions obtaining during the second stage are interesting. At the instant of opening into the labyrinth there is a sensation of dizziness for one or two seconds, and the hearing suddenly becomes of incomparable clearness and intensity, these manifestations coinciding with the loss of a little perilymph. After the operation this improvement diminishes rapidly, and on the seventh day when the œdema and inflammation are at their height the hearing is very bad. As healing progresses, however, the hearing improves, and in the course of some months reaches almost that pitch at which it was at the moment of piercing the labyrinthin walls. The success of the treatment depends upon the behaviour of the flap, but the advantage of the operation is that the isolation of the middle ear renders subsequent readjustment feasible and without danger.

So far Sourdille's results are encouraging. Six operations have been performed, and the results are as follows :—

	High pitch	*Low pitch*
Mme. G. ..	.. 2 m.—6 m.	—
Mlle. M. ..	.. 2 m.—12 m.	.05 m.—1 m.

Mr. B.—The hearing recuperated, but the flap thickened and retracted so that the deafness returned, but was not rendered worse. The second operation was again unsuccessful, but the patient was sufficiently impressed with the results in the other cases to undertake a third.

	High pitch	*Low pitch*
Mlle. G. ..	.. 3 m.—7 m.	.1 m.—1 m.
Mlle. L. M.	.. 7 m.—10 m.	.05 m.—.5 m.
Mlle. L. ..	.. —	.05 m.—.1 m.

In the last case the second stage of the operation was not performed. In the last three cases the hearing is still improving not only in intensity but in clarity, and in all cases except that of Mlle. M. the improvement has been noticed by all the patient's friends and relations. Jenkins, in this country, finds that opening the labyrinth will relieve tinnitus, but he is inclined to confine operation to the relief of this symptom and does not consider operation in most cases of otosclerosis advisable.

Finally, an interesting contribution to the treatment of catarrh by inflation has recently been afforded by Lowndes Yates.[7] He has studied the function of the wax in the external auditory meatus, and, together with Starling, has performed experiments which tend to show that a most important function of the wax is to prevent the evaporation of mucus through the tympanic membrane. He found that where it was impossible to break down adhesions in the middle ear by inflation through the Eustachian tube, insertion of artificial wax into the external auditory meatus would in time render these adhesions less set and more responsive to inflation. This effect he attributes to an accumulation of mucus in the middle ear which softens the adhesions and so renders their breaking down easier. When we consider that a prominent symptom of otosclerosis is a relatively wax-free meatus, the significance of this observation is apparent.

Such, then, are some of the methods by which deafness is attacked. If none of them merit the dignity of being termed cures, if, indeed, the alleviation they provide is only limited in degree

and confined to certain instances, they at least suggest lines along which future research may be guided. Sir Charles Ballance says: "We are only on the threshold of our knowledge of the ear," and yet at the outset there is indication that in the future much may be done. Before we can expect great results there is an amount of research to be undertaken. In the case, for instance, of otosclerosis we should wish to know, as Gray has emphasised, the pathology, not only of the ossicles but of the cerebral cortex, of the drum and of the meatus. We are told that the calcium content of the blood is raised, but we wish to know what is the relation between this and the effects of pregnancy. The bony lesions and the hereditary factor suggest involvement of the glands of internal secretion, and the condition of the parathyroids and pituitary in this disease must be investigated. Further, the calcium content of the cerebro-spinal fluid, which is in direct communication with the perilymph, and the variations in the bone phosphatase during the course of the disease are points which will assist in arriving at a conception of the true nature of the condition.

It would not here be possible to enlarge upon the enormous field for inquiry which is presented by this branch of medicine. It seems that here as much as in any branch of therapeutics original research and ingenuity are required to unravel the fascinating problems which are presented, and if the formulation of these modern methods of treatment has effected little else, it has shown that conditions regarded as hopeless, conditions which exclude the sufferer from many of the joys of life and from proper intercourse with his fellow-men, infirmities which seldom command the sympathy which is their due, are not the intractable, relentless processes which they have been considered, but are proper material for treatment to arrest and to cure.

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Dental Society's 32nd Annual Dinner

SATURDAY, 28TH FEBRUARY, 1931.

THERE is, in my mind, no doubt at all
That some dinners please, while others pall;
And so it is, on each occasion,
That when I accept an invitation
To go as guest to some such function,
I do so, at first, with guarded unction,
And by the time I've been and dressed
I've lost even all apparent zest,
And have quite honestly confessed
I'd rather not be such a guest.

And so, last Saturday, in terror,
I arrived at Claridge's in error,
And, asking for Guy's Dental Dinner,
Was soon repulsed, and later, in a
Taxi-cab, I found my ticket,
And decided that I'd grin and stick it;
And so it was that some time later,
Ascending in an escalator,
At the Trocadero I entered in,
And approached the bar and drank some gin.

Now after lots more gin and sherry
My shyness went; I felt quite merry,
And enjoyed with wholesome appetite
The dinner and the splendid sight
Of nearly three hundred dental men
And other distinguished gentlemen,
Some of them small, and some of them tall,
And quite a few with no hair at all,
Telling stories of every sort,
Until we reached the cigars and port.

And after we'd toasted the King and Queen,
Colonel Howkins said he'd always been
A staunch supporter of Guy's because
He always believed our Dental School was
A pioneer, in various ways,
Of dentistry from ancient days;
And as an examiner he liked to feel
That, though he'd eaten a splendid meal,
He'd pass a man from Guy's if he could,
Less from bias than because he was good.

Mr. Whitbread, the Treasurer, then arose
And told a story, which everyone knows,
Of Antony and Cleopatra's tent.
On one thing, he said, he was really bent,
And that was that Guy's, although in debt,
Should carry on and never let
A municipal body subsidise
Our voluntary status; it wouldn't be wise.
Of one thing he was proud, he wouldn't disguise,
The honour of responding to the toast of "Guy's."

Mr. Hobson, whose speech was greeted with cheers,
Has attended this dinner for thirty-two years.
He told the story of a man named "Pile";
I'm forbidden to print it—it made me smile!
Mr. Bull and the Toastmaster then made a speech,
Because Mr. Bull's voice didn't quite reach.
Mr. Rew replied; he comes from Queen Square;
You must have seen him if you've ever been there.
Some other speeches were also made,
The notes of which I fear I've mislaid.

With *Mr. Widdowson* I sympathise,
For I have also run dinners at Guy's.
He deserves, I think, the highest praise
For what, I feel, was, in many ways,
The cheeriest evening I've spent for days;
And I hope, for his sake, he finds it pays.
Most dinners are run at a loss, I find,
And no one ever appears to mind
That the Secretary, who's done all the work,
Should bear the brunt while others shirk.

REGULAR DINER.

Nursing News

ON Friday, 20th February, the nursing staff and friends had the pleasure of listening to a most interesting lecture on the history of Guy's Hospital by Dr. Fawcett. The anatomical theatre was filled to overflowing, and the time went all too quickly.

Dr. Fawcett gave a graphic description of the times in which Thomas Guy lived—the increasing wealth and prosperity from trade and commerce on one hand with widespread distress and poverty on the other; and how, in spite of the constant religious controversies that were being waged at the time, there was a real desire in the minds of the people to do good. So from this condition of strife and distress sprang many philanthropic movements, one being the foundation of Guy's Hospital.

Two other important periods in the life of the Hospital were portrayed—the reign of "King Harrison," when Hunt's House was added, and the treasurership of the beloved Sir Cosmo Bonsor.

The story of the episodes which led to the foundation of the Medical School was much enjoyed; also the description of the early Guy's nurses. The nurse who "resigned and became a patient" seemed to be specially popular, for, as Dr. Fawcett sympathetically remarked, we must often have wished to do the same!

At the conclusion, the Matron proposed a vote of thanks to Dr. Fawcett, and voiced the wishes of the whole audience when she said she hoped that Dr. Fawcett would come again and continue where he had left off.

Correspondence

Errata

To the Editor of the GAZETTE

SIR,—In your last number I reviewed Savill's "System of Medicine," and in an attempt to illustrate the fact that the book had kept perspective I wrote that several pages were devoted to tuberculosis, whereas only a few lines of small print were given to tularemia. Unfortunately, for *tularemia* was printed *anæmia*.

Yours, etc.,
R. E. SMITH.

Guy's Hospital, London, S.E.1.

(We apologise to Dr. R. E. Smith for an error in proof-reading.—ED.)

To the Editor of the GAZETTE

SIR—We are in receipt of a copy of your issue of the 21st inst., in which reviews appear of several of our publications.

We wish to point out a mistake in the announcement of one of these, namely, the book on Diseases of Children which is written by Dr. Bruce Williamson, and has no connection with the book on Bacteriology written by Professor Mackie and Dr. McCartney. In the announcement of this review you refer to the authors as Williamson and Mackie, and "the authors" are also referred to in the plural in the review.

Yours, etc.,
E. & S. LIVINGSTONE.

16 and 17, Teviot Place, Edinburgh.

(We apologise for this unintentional confusion on the part of our reviewer.—ED.)

Anæsthesia at Barnes Hospital

To the Editor of the GAZETTE

SIR,—It has often been said that statistics can be made to prove anything, but I feel that those given by the Barnes Hospital relating to the consumption of gas and oxygen in the last number of the *Gazette* cannot be allowed to pass without comment. It is there stated that the consumption of gas and oxygen per hour is 215 gallons with the McKesson machine, 100 gallons

with the Heidbrink, and 60 gallons with the Metric. Owing to the enormous differences in respiration volume which occur in individuals when at rest, and these are still greater under nitrous-oxide oxygen anæsthesia, it is doubtful whether records of this nature are of any value at all. Certainly the term "average," in this connection, is about on a par with the calculations of professors who tell us that the age of this planet is between two and four thousand million years, a margin of error of either 50 or 100 per cent., according to which of these figures one regards as correct. It may be stated, without drawing any unjustifiable inferences therefrom, that an individual whose tidal volume is 500 c.c. and whose respiration rate is 20 a minute, will require 132 gallons of air per hour. It is my opinion, unsupported by measurements, that this allowance is usually exceeded under nitrous oxide and oxygen, but this can be reduced by permitting re-breathing, and still more by the use of ether in any considerable amount.

The McKesson is an intermittent-flow machine, so that gases only flow during the patient's inspiratory efforts. Provided the apparatus is properly managed, so that the gases are not delivered at excessive pressure with the expiratory valve too far open, all the gases passed through the machine are actually used by the patient. Apart from this, the consumption of the machine, *i.e.*, the wastage, is exactly nil. This is true for all intermittent-flow type machines.

The Heidbrink is a continuous flow machine. It is impossible to gauge exactly the patient's requirements during a long anæsthesia with varying respiration. Therefore, unless the patient is starved of gases and over-rebreathing allowed, some excess of gas must be delivered which makes its exit under the face-piece or, more usually, through the expiratory valve. The consumption, or wastage, of this type of machine is then anything from zero upwards.

The statement that the Metric uses only 60 gallons an hour, viz., only half the "normal" requirements, is on the face of it absurd. Unless the figures have been deliberately "cooked" by careful selection of feeble patients with abnormally small respiratory volume, such a result could only be obtained by (1) gross leakage of air, (2) excessive re-breathing, or (3) depression of the respiratory centre by ether or pre-medication. An inexperienced anæsthetist will naturally choose to employ his favourite machine for difficult cases, and will, in addition, use considerable amounts of ether.

I commenced my last operation list, using a McKesson apparatus, with a fresh 200-gallon cylinder of N_2O. This lasted for three cases and a fraction, and was in actual running use for 2 hours 14 minutes. One case, a reduction of a fracture, required ether throughout, and a second, nephrectomy, called for small amounts of ether at certain stages in the operation. A second cylinder of like capacity has run 58 minutes for two cases, without ether, and appears to be not yet half empty. Unfortunately, the amount of oxygen used could not be measured, owing to a leakage in a fitment which is not a standard part of the McKesson machine, but 30 gallons is a liberal allowance with 200 gallons of N_2O. At all events, a 20-ft. tank of oxygen, with a leaky joint, has survived all five operations of a total duration of 3 hours 12 minutes.

There is one point of importance in measuring the amount of N_2O used for a single case. It is not sufficient to read the pressure dial at the beginning and end of the administration. The small amount of water vapour present even in "dry" nitrous oxide interferes with the accurate working of the pressure gauge, and the second reading is nearly always too low. The gas should be turned off, and the machine rested for five or ten minutes; when the gas is turned on again a higher reading will be found. Unless this is realised, the calculation of N_2O used will be much too high.

Yours, etc.,
H. GRANTHAM DODD.

4, Ventnor Villas, Hove.

Reviews

Human Physiology. By F. R. WINTON, M.D., and L. F. BAYLISS, Ph.D. Published by Messrs. J. & A. Churchill, Ltd. *Price 24s.*

REPEATED revision has given most of the standard physiological text-books a regrettably encyclopædic character. They are, as a result, either used infrequently for reference purposes or else read in feverish haste as a sort of final penance during those few frantic days which precede the all-important examination. No longer books in the true sense of the word, they deserve no better treatment.

It is significant that several excellent presentations of so-called "applied physiology" have already sifted from the immense bulk of knowledge that has accumulated in what may be called the biological sciences that particular type of information which might be expected to have most value for those beyond the pre-clinical stage. The second-year student is less fortunate. Books

of applied physiology are of little use to him. He has hardly even realised the existence of a small extension of physiological knowledge termed pathology, and is faced with an immense subject that has long ago outgrown its originally entirely medical aims and outlook, while the books with which he is provided have become altogether unwieldly in their attempt to encompass the entire span of a science which links up with organic chemistry on the one hand and colloidal physics on the other. The President of the Royal College of Surgeons has recently complained, quite properly and poetically, of course, that modern physiology would seem to be neglecting medicine. Nothing could be more appropriate, therefore, than that University College, where the "ways of mice" appear to be quite as important as the "ways of men," should produce this entirely adequate yet quite elementary refutation of such a charge.

The authors of *Human Physiology* have by deliberate restriction of their subject matter not only broken with classical tradition in the teaching of their subject, but written what is easily the most readable elementary text-book of physiology. Ruthless omission of much of the older physiology has given the work a commendable freshness of outlook and helped to keep it within reasonable limits of size. The inclusion of a small bibliography in an appendix has rendered the usual repetition of the names of authoritative workers in each field unnecessary. This is an excellent device, for it is obvious that there should be closer acquaintance with the contributions to physiology of, say, Carl Ludwig and Claude Bernard in the last century and Sherrington or Hill in the present than that to be gained at second-hand from a text-book, however good.

The arrangement of the subject matter is quite orthodox, the problems of muscle physiology being first dealt with and a fair statement given of the present, and in all probability extremely temporary, position of the chemistry of muscular metabolism. A brief account of the properties of nerve leads up to a consideration of the blood and circulation. The mechanism involved in the transport of oxygen and carbon dioxide always present difficulties in an elementary text-book and are not easily surmounted in the absence of a good working knowledge of the physical chemistry of reaction and the colloidal state, but, after all, this should not be too much to expect from the first year of a modern medical education. A more detailed consideration of the impulse conduction in nerve forms a prelude to the section on the central nervous system, which, perhaps, suffers to a slight extent from lack of diagrammatic illustration. Any deficiencies, however, are completely redeemed by the excellent section on the special senses, and the extremely clear account of modern work on the relations between the various endocrine organs.

Messrs. Churchill have printed and bound this volume in their usual splendid style, and it sells at a price that is extremely moderate.

Manual of Physiology for Students and Practitioners. By H. WILLOUGHBY LYLE, F.R.C.S., and DAVID DE SOUZA, M.D., F.R.C.P. Published by Messrs. Humphrey Milford at the Oxford University Press. *Price* 16*s. net.*

HERE is a third and completely revised edition for those who prefer a physiological primer of proved vintage. In a blue binding uniform with that of a well-known dissecting-room manual, it appeals to us rather as a means of revision than as an attractive introduction to a subject not entirely without some fascination for the scientifically minded. Indeed, most of the book is sound examination stuff, with no philosophic frills, clearly and convincingly illustrated with some excellent line-drawings. The authors have a fondness for structural formulæ which we scarcely share, especially when the molecule is allowed so little latitude, and few molecules are without a little temperamental tautomerism on occasions. Most things are very dogmatically presented in this book, and it may be a great advantage to have all matters, even doubtful ones, quite definite and settled before attempting an examination paper. In anatomy, of course, there has never been any alternative, but, until recently, physiology has been less exacting.

We feel that, while this is hardly a book for the practitioner, a second-year student with the "visual" type of memory would find it an inexpensive yet substantial basis for his revision work prior to the examination.

Cancer and Race. By MAURICE SORSBY, M.D., F.R.C.S.E. Published by Messrs. John Bale, Sons & Danielsson, Ltd. *Price* 7*s.* 6*d.*

IN its some hundred odd pages this book comprises the result of over three years of patient and meticulous investigation into the cancer mortality of Jew compared with that of Gentile in several of the larger European cities. The opening pages are devoted to an admirable preface by Lt.-Col. F. E. Fremantle on the value of this method of studying the incidence of cancer and on the light such methods may be expected to throw upon its ætiology. Dr. Sorsby then presents the various aspects of the problem which he has studied, the mortality rate in large cities,

the sex distribution and the distribution according to organ. He discredits any attempt at recourse to a specific racial factor in explaining the remarkable freedom of Jewish women from cancer of the uterus and of Jewish men from penile cancer; and he attributes this freedom rather to the high standard of personal hygiene demanded by the Mosaic Code, which he quotes at length.

Unlike the vast majority of its brothers in statistical quotations, the book is not dry and forbidding, but is as interesting in context as it is pleasing in style.

The "Guyoscope"

THE *Guyoscope*, as most of our readers already know, was an enterprise of a noble and extremely ambitious type, and it was, we feel, mainly on account of its striving to maintain so high a standard of humour that it died an early death. Half simulating a cat, it had two lives, being born for the first time under the parentage of the late Mr. Stanley Cock and Mr. Ham in 1897, and, after a short life, being resurrected in 1906, during which year it published only six monthly issues, after which it made its final exit. We reproduce here, with the greatest and most genuine respect for the memory of this heroic little rival, the following random extracts (1906), for there was, in those days, a considerable amount of acrimonious antagonism between the *Guyoscope* and the *Gazette*:—

Another *faux pas* by a ward clerk: "Patient has a swollen and very tender ankle, which he attributes to a wench."

It was the termination of a "going-off" night, and the Good Samaritan was officiously offering to assist the belated reveller to retire in good order, but the latter haughtily replied: "I won't allow anybody in this hoshpickle to take my bootsh off! In the firsht place, itsha menial occupashun. And, secondly, I've got holesh in my shocks!"

Overheard on the way to the College: "Hi, doctor, give us a penny!" . . . . . "Yah, stoodent!"

Suggested motto for the X-Ray Department: "Let your Light so shine before men that they may see your good works."

We have much pleasure in giving the latest definition of the surgical staff, which, we may incidentally add, comes from the medical side: "Hewers of flesh and drawers off of water."

H.-S. of Eminent Surgeon is operating for radical cure of hernia. Eminent Surgeon looking on, pleasantly bored. H.-S. is just about to tie and cut off what he takes to be omentum.

E. S. (suddenly): "How funny that looks, doesn't it? I almost thought there might perhaps be muscle fibres there. I wonder if you would mind my washing up and sponging for you." (Does the former, and continues the dissection with many thanks to H.-S.) After a short interval: "Yes, you're *quite* right; it *is* bladder."

There once was a patient said, "Oh!
I'm feeling uncommonly low,
I'm getting much thinner
And can't eat my dinner";
Said the dresser, "Mist. Acidi Co."

Punctuality (in the colonnade) is the thief of time.

There once was a thrombus who said,
"If I only can get to his head,
I can stop him from walking
And also from talking,
And leave the poor devil for dead."

HOTEL PERRY,
February 7th, 1906.

DEAR ANGELA,

I am so sorry I cannot write a long letter this time, dear, but it is really quite impossible, as the Massage exam. takes place in three days, and I am awfully backward with my work, especially the bone part. I am quite sure I shall never know the difference between a right and left lumbar vertebra, although I have been working quite hard. I really have no time to write more now, dear, but will let you have a long letter next month. I shall be so thankful when it's all over. In haste,

Your ever loving,
GLADYS.

LIFE'S LITTLE DIFFICULTIES

I

MY DEAR FATHER,—Thanks for your letter. I cannot, unfortunately, immediately return your watch, as I have had to send it to be cleaned. I will bring it home with me when I return next week.—Always your affectionate son,

JOHN FASTLEIGH.

II

SOLOMON NOTTINBOROUGH presents his compliments to Mr. John Fastleigh, and is prepared to accept the microscope (Crouch, $\frac{1}{6}$ and $\frac{1}{3}$ lenses) in exchange for the gold watch (No. 17785) at present in pledge, provided that the former is as represented. All future dealings, however, must be upon a cash basis.

III

MY DEAR SON,—We are looking forward to your return home to-morrow. By the way, bring the microscope with you, as I have an important case, which will probably turn out to be phthisis. —Your affectionate Father.

IV

MY DEAR FATHER,—I am awfully disappointed, but am afraid that I shall not be able to come home, as I have to work hard for my next exam. and must not waste time.—Your affectionate son,

JOHN.

P.S.—(*a*) Am using the microscope, and find it *such* a help. (*b*) Could you send a pound or two, as I have to get some special books?

Following on the rule that not more than two articles are to be kept on the nurses' dressing-tables, we hear that they are also debarred from placing anything on the chests of drawers or medicine chests in their bedrooms. Filigree photograph frames, pin-cushions, and needle-cases are to be kept in the bed. The material for fomentations and other dressings may be obtained free of charge from Mills.

FULL DRESSER.—*Facilis est descensus Taverni.*

As we go to press, we are glad to be able to record the fact that the Editor of our friendly little contemporary, the *G.H.G.*, has been safely delivered of a small Joke. Although at one time he so nearly split his sides that the Sub-Editor (who was instrumental in the delivery) greatly feared his chief would die of laughing, we are relieved to say that both Joker and Joke are doing well. In view of this unusual state of affairs, we feel sure that the following words of fatherly advice will be received in the spirit in which they are given.

In the first place, we would urge our friend to exercise the utmost care how he handles his Joke, or he may crack it. He must remember that bad Jokes, like bad eggs, should never be cracked.

Then with regard to the daily bath, he should take care that the Joke does not get him into hot water, always bearing in mind that cold water is not good for Jokes—especially little ones.

Lastly, clothes. Don't let him wrap his Joke up too much, or his numerous readers will be unable to see it; at the same time he should take care that it does not become threadbare.

Sport

Rugby

Guy's v. Aberavon

AT Aberavon on Saturday, February 14th, Guy's achieved their best performance of the season when they just managed to win by the odd point, the scores being—Guy's, a placed goal and a dropped goal (9 points); Aberavon, a placed goal and a try (8 points).

The visit of the Hospital proved a great attraction —a record crowd turned up and were rewarded by a very clean and attractive game. The fact that members of the Welsh International Selection Committee were also present added to the importance of the match, in which both Windsor Lewis and I. K. Thomas showed up prominently throughout.

Guy's fielded the same side which represented them against Cambridge, and this meant that Popplewell and Morgan were still absentees. However, Hilton, who took Popplewell's place, played an inspiring game and tackled splendidly. It was a ding-dong struggle, in which the backs of both sides ran strongly, but a number of movements were marred by weak handling.

In the first half, Guy's held a definite advantage in the tight scrums, but the home side were superior in the loose and Howell came in for a gruelling time at the hands of the forwards and scrum-half.

Curiously enough, after the interval the Guy's forwards improved very much in the line-outs, but lost the advantage in the scrums.

Hogbin kicked off for Victor to mark and send Guy's back with a long kick. Giesen took the ball back to mid-field, where play was confined for some time. Guy's won the majority of the scrums, but could not make much headway, and the Aberavon backs resorted to the high punt and follow-up, but Walter Lewis handled well and drove them back with good touch-finders. Both the Guy's halves were harassed by the home wing forwards, but, in spite of this, Howell got the ball to Windsor Lewis, who put in some sparkling runs. From a mid-field scrum, Windsor Lewis ran well and passed to Giesen; the latter drew the opposition

and then gave Johnson a clear run in, but the pass was missed. Play swung back to Guy's territory, and from a scrum Howell ran round and broke through, only to slip in passing to Windsor Lewis. The ball was promptly booted ahead by Barnes, the Australian winger, who was making his first appearance, and, following up fast, he just managed to beat Walter Lewis for the touch-down near the posts for a try, which was converted.

This was bad luck for Guy's, who had had much the better of the game so far, Windsor Lewis being especially conspicuous. However, the Hospital never gave up trying, and eventually their efforts were rewarded. From a scrum in mid-field, Howell set his line going, and the whole of the back division ran and handled beautifully. The ball reached Thomas, who, after drawing the centre and wing men, sold a smart dummy and slipped through the gap. He eventually gave a good pass to Ashdown, who took the ball at full speed and, after a great run, scored behind the posts for Hogbin to add the extra points and level the scores. It was a spectacular try and greatly appreciated by the crowd present.

After a period of mid-field play, Barnes intercepted a Guy's pass and, running strongly, scored an unconverted try in the corner, to give the home side a lead at the interval by 8 points to 5.

The early stages of the second half were noteworthy for some fine runs which were put in by Johnson, whilst the Aberavon backs brought off several clever rounds of reverse passing.

Guy's settled down in Aberavon's 25, and eventually Giesen got away in fine style and passed inside to O'Shea. The latter was immediately tackled and, although hampered by two or three opponents, he dropped the ball and immediately punted it between the posts for a fine drop goal. This success inspired the Hospital team and, although there was no further scoring, Guy's had two or three chances of getting over.

Jenkins played a great game for Aberavon, and was about the best forward on the field, whilst Batchelor, Lashmore, Hogbin and Hilton put in a lot of hard work for Guy's. A. R. Clarke tackled well, but the honours of the game undoubtedly went to J. Howell, who emerged with credit from a gruelling time at the base of the scrum.

Team.—Walter Lewis; D. E. Ashdown, I. K. Thomas, J. E. Giesen, A. G. Johnson; Windsor H. Lewis, J. Howell; J. S. Batchelor, J. P. O'Shea, J. Kunovsky, I. G. Robin, L. B. Hilton, R. A. P. Hogbin, G. F. Lashmore, A. R. Clarke.

Inter-Hospital Cup—Second Round
Guy's v. Bart.'s

AT Richmond on Tuesday, February 17th, Guy's said farewell to the Cup for the present year, when they were surprisingly defeated by a placed goal and a try (8 points) to nil. After the fine displays given in recent matches the result must come as a shock to many of the old Guy's men, but, as so often happens in Cup-ties, the inevitable happened and, with Bart.'s playing a spoiling game throughout, Guy's were never allowed to reproduce the form which they have exhibited in club games.

From the commencement it was evident that our old rivals had a pre-arranged plan of action, which they carried out most effectively. In the early stages of the game the Guy's pack heeled the ball, and Windsor Lewis tried repeatedly to set his backs in action, but the backs were so effectively marked and tackled by the Bart.'s wing forwards and three's that they had little chance of making any progress. In fact, our opponents' defence lay up so close that they came perilously near being penalised for offside on several occasions. However, their policy paid, and, after patiently repelling numerous attacks, they made full use of two opportunities that came their way and scored on each occasion.

Owing to the continued indisposition of Eustace, Howell occupied the scrum-half position for Guy's; otherwise both teams were at full strength.

Walter Lewis, who retained his place at full-back, played a very sound game, and his kicking and tackling were both cool and excellent. J. T. C. Taylor, the trial cap and opposing scrum-half, was in splendid form, and Howell had a difficult task in holding him. Taylor, playing behind a lively and determined pack, proved of invaluable assistance with his kicking to touch, and, but for the watchfulness of Popplewell and Hogbin, he would have been very dangerous with his elusive steal aways from the scrums.

Guy's started off very confidently, and immediately dashed away to Bart.'s territory. Windsor Lewis, J. E. Giesen and I. K. Thomas made several efforts to get A. G. Johnson away on the left wing, but the latter was so well watched by D. H. Thomas that he was tackled and grassed as soon as he received the ball. As the game progressed so the tackling became deadlier, and it became increasingly difficult for anyone to gain more than a few yards of ground.

In the first half, Guy's were given one or two difficult chances of scoring from long-range penalty kicks, but the greasy ball was of no help to Hogbin,

who has been consistently sure of his kicking throughout the season.

The excitement really began after 15 minutes' play following the interval. After Guy's had been pressing hard, Taylor cut through for Bart.'s, and, although Lewis had brought him down, Bart.'s were awarded a penalty from an easy position, which Nunn failed to convert. Soon afterwards, Nunn punted across the field for Prowse to pick up after D. H. Thomas had missed the ball. Prowse sent out a good pass to Thomas, who raced away on the wing and eventually sent in Nunn for a good try for Ryan to add the extra goal points.

Following this surprising reverse, Guy's set up a hot attack and made repeated attempts to get through, but they were met by a solid defence which left nothing to chance. A penalty awarded to the Hospital gave Hogbin an opportunity to reduce the deficit, but unfortunately he missed.

Guy's continued to press, and it looked as though they would draw level. The hopes of their supporters were raised further when they were awarded another penalty, from which Windsor Lewis started a passing movement. Unfortunately, this ended disastrously for Guy's, as Petty intercepted and, although he was tackled near the goal line, the ball went loose and D. H. Thomas dribbled over and touched down for an unconverted try.

The whistle for "no side" sounded soon afterwards, and Bart.'s thus revenged the defeat inflicted by Guy's in the Final last year. The winners now meet King's in the Semi-Final, and all at Guy's wish them success in their remaining matches for the Hospital trophy.

Team.—W. Lewis; D. E. Ashdown, I. K. Thomas, J. E. Giesen, A. G. Johnson; Windsor H. Lewis (Capt.), J. Howell; J. S. Batchelor, J. P. O'Shea, J. Kunovsky, I. G. Robin, L. B. Hilton, J. R. F. Popplewell, G. F. Lashmore, R. A. P. Hogbin.

Guy's v. Birkenhead Park

FOR their visit to Birkenhead Park on Saturday, February 21st, Guy's were compelled to field a weak side owing to injuries and illness, the result being the home side won comfortably by 3 placed goals and 2 tries (21 points) to a try (3 points).

Windsor Lewis, Howell, Thomas, Popplewell and Hogbin were all absentees, and it was at half-back where the Park had a definite advantage. T. C. Knowles and O. W. Roberts were too good, both in defence and attack, for our halves, and had not Knowles dropped several passes in the early part of the game the home side would have won by a much wider margin.

The Park forwards were superior to the Guy's pack, and Roberts was given many opportunities of setting his three's in action. Although the Hospital had the wind in their favour during the opening half, it did not help them very much, as the Park held the upper hand in the scrummaging, with the result that the Guy's backs had little opportunity of showing their worth.

At half-time the home side led by a goal to nil as the result of a good effort by G. S. Wilson, who crossed and converted his own try.

After the interval, Guy's had great difficulty in keeping their opponents out of their 25 until 20 minutes before the end. The Hospital defence then cracked up rather badly, and further tries were scored by A. P. Hughes, J. Charles, W. Charles and T. C. Knowles, two of which were converted by G. S. Wilson; but eventually the Hospital replied with a try through Ashdown after an excellent passing movement between the three's, which was backed up well by the forwards.

Team.—W. Lewis; D. E. Ashdown, W. G. Zorab, J. E. Giesen, A. G. Johnson; W. B. Clegg, S. C. Shore; J. S. Batchelor, J. A. T. Rowlett, R. J. Drummond, L. B. Hilton, P. K. Robinson, I. G. Robin, D. N. Leeming, A. R. Clarke.

Hospital Information, etc.

Pass List

CONJOINT BOARD

January, 1931.

Pathology.

J. S. Batchelor
G. N. Carrell
T. F. Davies
H. Edwards
J. Howell
G. R. C. Rayner
J. W. V. Sheldon
*R. B. Sutcliffe
*T. F. Todd
C. E. R. Wood

Medicine.

*K. Biden Steele
*E. T. Blacklee
A. C. Hauptfleisch
*J. T. Irving
*D. W. James
*T. C. Lansdale
*S. Lefcovitch
*G. A. M. Lintott
*M. J. O'Donnell
*J. W. Oliver
*R. N. C. Smith
K. S. Southam

Surgery

G. Barwell
J. S. Batchelor
*A. R. Clarke
D. Erskine
*J. T. Irving
I. O. Jones
D. H. Klugman
G. F. Lashmore
*S. Lefcovitch
*J. W. Oliver
A. Segil
*J. F. Todd
J. C. Wharton

Midwifery.

E. A. R. Berkley
*K. Biden Steele
W. H. Bradbeer
G. N. Carrell
H. A. Constable
M. J. Garber
W. H. Greaney
*S. Lefcovitch
R. W. McNabb
A. Miller
I. Moshinsky
W. W. Parry
C. H. Rogerson
C. Rutter

G. W. Hall Smith — E. Sharp
*J. T. Irving — *T. F. Todd
M. Kossloff

*Have now completed the Examination.

DIPLOMA IN PUBLIC HEALTH.

January, 1931.

F. W. Bradley.

OXFORD UNIVERSITY.

February, 1931.

Doctor of Medicine.

C. P. Blacker.

Bachelor of Medicine

J. H. Chitty.

SOCIETY OF APOTHECARIES OF LONDON.

February, 1931.

Surgery.

J. M. Durr — J. S. Lane

Medicine.

J. S. Lane

Guy's Hospital Dental School

DENTAL TRAVELLING SCHOLARSHIP

A SCHOLARSHIP enabling the holder to take out a Course of at least six months' practical work in Dental Surgery at one or more Colonial or Foreign Dental Schools will be awarded in March, 1931. The conditions attached to the award are as follows :—

1. Candidates must be registered Licentiates in Dental Surgery of the Royal College of Surgeons of England, or holders of a Dental Degree of a British University who have been educated at Guy's Hospital Dental School.
2. The scholar will be required, within the 12 months succeeding his appointment, to take out a course of at least six months' practical work at one or more Colonial or Foreign Dental Schools or Colleges previously approved by the Dental Council of the School.
3. The scholar will be required to present to the Dental Council of the School a report of the work which he has done during the period of his scholarship, and a certificate from the Dean or other responsible official of the school or schools to which he has been attached, giving details of such work done and the time occupied thereon.
4. The total value of the Scholarship will be £250, of which, unless otherwise ordered, £150 will be awarded upon the appointment of the scholar and the remainder upon the completion of the Scholarship and the approval of the report by the Dental Council of the School.
5. The scholar may be required to act as a Staff or Extra Demonstrator of Operative Dental Surgery during the academic year following his residence abroad.

The scholar will not be required to proceed abroad until September, 1931.

Applications should be lodged with the Dean, Guy's Hospital Dental School, London, S.E.1, not later than March 16th, 1931.

Papers by Guy's Men

I. M. Benjamin. Whooping cough with inspiratory stridor. *B.M.J.*, 1930, i, 180.

A. Bulleid. Bacteriological studies of apical infections, Part II. *Brit. Dent. J.*, 1931, lii, 105.

W. D. Doherty and R. P. Rowlands. Subphrenic abscess. *B.M.J.*, 1931, i, 168.

R. P. Rowlands. Fæcal fistula and artificial anus. *Clin. J.*, 1931, lx, 61.

H. W. Barber. Multiple angiomata. *Proc. R.S.M.*, 1931, xxiv, 389.

—— 1. Nævus unius lateralis involving the sebaceous glands and pilo-sebaceous follicles; 2. Angioma serpiginosum. *Ibid.*, 395.

A. Bulleid. Bacteriological studies of apical infections. Part III. *Brit. Dent. J.*, 1931, lii, 145.

G. B. Dowling. Acne agminata. *Proc. R.S.M.*, 1931, xxiv, 398.

A. F. Hurst. Use of carbon dioxide in treatment of vasomotor rhinitis, hay fever and asthma. *Proc. R.S.M.*, 1931, xxiv, 441.

—— The teeth and the stomach. *Ibid.*, 447.

C. L. Kark. Backache in women, significance and treatment. *B.M.J.*, 1931, i, 348.

G. Marshall. Abdominal tuberculosis. *Clin. J.*, 1931, lx, 89.

J. A. Ryle. Constitution as a factor in morbidity. *Clin. J.*, 1931, lx, 73.

Change of Address

H. E. Harding, B.M., B.Ch., 4, School Green Lane, Falwood, Sheffield.

B. T. Squires, B.M., B.Ch., St. Cuthbert's, Esolo, Cape Province, South Africa.

C. E. Gallagher, M.R.C.S., L.R.C.P., Talfourd House, 28, Mount Pleasant Road, Hastings. *Hastings* 1853.

T. R. Hill, M.D., 62, Queen Anne Street, W.1.

W. Tyson, F.R.C.P., St. Mary's, Newport, Salop.

J. W. S. Coe, L.D.S., 73, King William Street, E.C.4. *Mansion House* 5155.

H. R. Ward, L.D.S., 62, Harley Street, W.1. *Langham* 2758.

H. F. Stephens, M.R.C.S., L.R.C.P., 62, Queen Anne's Street W.1.

Appointment

C. E. Gallagher, M.R.C.S., L.R.C.P., Physician-in-Charge, Neurological Department, Buchanan Hospital, St. Leonard's-on-Sea; Physician to the Hastings Dispensary.

Birth

FOX.—On February 25th, 1931, to Dr. and Mrs. W. E. Fox (née York), 157, Jamaica Road, S.E.16–a daughter.

Marriage

LLOYD-STILL—ALLEN.—On February 17th, 1931, at St. Mary's Church, Luton, R. M. Lloyd-Still, M.R.C.S., L.R.C.P., Captain Indian Medical Service, to Vera Sybil Allen.

EDS. { P. M. F. B. / P. V. R.

GUY'S HOSPITAL GAZETTE

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PASSIM

IN those far-off and golden days, when we were ward clerks, when an appendicectomy in the early hours of the morning brought with it a certain glamour, a nebulous haze of the unusual, and was not, as, alas, it is now, a regrettable break in a hard-earned night's sleep—in those days with what pleasure we accompanied our H.S. on his night round and with what interest we would watch him writing on his bed-letters; each bed-letter began with Haust. Chlor. c. Pot. Brom. 1 oz. p.r.n., and we were given to understand that this was a sleeping draught.

But alas, age brings disillusion, and experience contempt; now that we ourselves are in a position to scribble on bed-letters it seems that haustus has lost its potency. Night nurses scorn it, Sisters sneer openly at it, and its use is confined to washing down the quantities of nepenthe and Tinct. Opii which the modern houseman thinks essential to make his patients sleep. No one dares to point out to a night nurse when she demands "something to make him sleep" that the patient can have haustus p.r.n.; that would merely invite being hauled out of bed three hours later to order a quarter of morphia over the telephone. No one seems to realise that this maligned haustus contains quite a good dose of chloral, and no one seems to realise that such a small dose of chloral given at the proper time is as efficacious as a quarter of morphia given at the wrong time.

The modern houseman has adopted heroic measures; because he is too lazy to adopt skill in his treatment he gives morphia by the pint and nepenthe by the bucket. Extravagance is a vice particularly dear to the young; most physicians have passed through a mental stage where the lavish measure is held the best, and a fierce devotion to pushing one's drugs more valuable than caution in timing the doses. We would exhort our fellow-housemen to lay on one side the garden syringe and to return to doses which can be held in an ordinary hypodermic syringe—the latter is just as effective if it is used with care.

IT is with pride that we take this opportunity of offering our very hearty congratulations to Professor Charles Stanley Gibson, O.B.E., M.A. (Oxon. and Cantab.), B.Sc. (Oxon.), M.Sc. (Manchester), F.I.C., on his election as Fellow of the Royal Society. The list of new Fellows also includes the name of Professor Alfred Joseph Clarke, Professor of Materia Medica at the University of Edinburgh. Professor Clarke, though a Bart.'s man, was for a time lecturer in pharmacology at Guy's.

WE would like also to offer our congratulations to Mr. G. F. Gibberd, M.S., F.R.C.S., on his appointment as Assistant Obstetric Surgeon to the Hospital.

IT may be of interest to some of our readers to learn that a series of views of the Hospital, some in photogravure and others as reproductions of etchings executed by Mr. H. G. Webb, is now obtainable. The photographs are priced at 5*s.* unframed, but mounted, and the etchings at 7*s.* 6*d.* Samples are on view in the *Gazette* Office, and may be inspected on application at the Counting House.

A FEW days ago, after dinner, we were delighted by the receipt of a bulky mass of paper which proved to be the "Return of Operations under General Anæsthesia for the year 1930," and, as its name appears, there is a great deal of quiet amusement to be extracted from it. For instance, what picture of horror is brought before the mind's

eye when we read that after an induction of ethyl chloride, one anæsthetic was carried on under alternate chloroform, chloroform and ether mixture, and ether.

The returns for avertin are interesting, 220 avertin inductions were performed, of which half were maintained under gas and oxygen only, but only two nembutals are recorded. Sodium amytal is represented by one solitary case.

The total number of anæsthetics given during the year was 9,120, and there were seven deaths under anæsthesia. Considering what a large percentage of these anæsthetics was given by house officers, none of whom could have been qualified for more than two years at the most, this mortality rate is not so appalling as it sounds.

The returns also raise intriguing little thoughts in one's mind—what was Dr. Hampson's one anæsthesia in the Front Surgery, and on what momentous afternoon did Mr Fagge give his solitary, annual anæsthetic, and what was the nature of the one operation performed by the Head Nurse on the Surgery?

THE Goths are upon us, by the side of the Massage Building, they have erected their first temple, what a pity it is that they have chosen one of Lyon's most poisonous Corner Houses as their architectural model.

Once now that our traditional conservatism has begun to crack, what may we expect in the future? Will the surgical block be demolished and rebuilt on the model of the Plaza? Will poor old Thomas Guy be dragged from his perch and replaced by a simian figure with thick lips, rectangular muscles and acromegalic hands?

Gonorrhœal Stricture

A Clinical Lecture delivered at Guy's Hospital by A. R. Thompson, Esq., February, 1931

GENTLEMEN,—This afternoon I wish to speak to you about some cases of stricture of the urethra that have come under the care of the Genito-Urinary department.

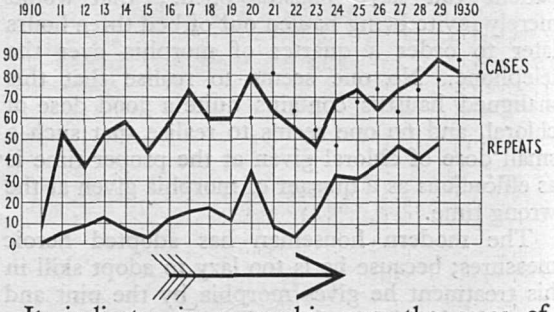
The instruments commonly used for the treatment of stricture must be carefully differentiated, and no loose term must be used in considering them. There are three instruments in common use. Two kinds of solid instrument, metal, and some form of softer material. There is also the catheter. A bougie is an instrument for passing along the urethra; incidentally it must, therefore, enter the bladder, but it is not an instrument for draining the bladder except under special circumstances which we shall discuss later. A catheter is an instrument for drawing off fluid from the bladder, and in order that this may be done the instrument must be passed through the urethra, and for this reason it may be conveniently used in treating urethral stricture, though it is not primarily designed for this purpose.

The usual type of catheter or soft bougie is a straight one with an olive-headed point. The usual metal bougie is that designed by the late Mr. Clutton, of St. Thomas's Hospital, and I consider that this instrument is better than that of Lord Lister, in that it has a much better balance—an important item in passing such an instrument.

Unfortunately, these instruments are of different standards. The catheters and soft instruments of a solid nature are numbered according to the English standard, and the metal bougies are numbered according to the French standard. I do not know on what the English standard is based, but I do know that the French standard is based on the number of millimetres in the circumference of the instrument.

A No. 6 instrument on the French scale is smaller than the same numbered English instrument, and when you are examining cases that have come from other hospitals you should inquire as to what standard was adopted there. There are two numbers on the solid metal bougies, and the number "four" separates them. Thus we have 18/22, 16/20, 14/18, or, in other words, X/X plus 4. The size 18/22 corresponds roughly to a No. 11 English size.

Before I go on to consider cases of individual interest, I wish to show this chart, which may give us some help:—



It indicates in a graphic way the cases of stricture that have come under my care since the beginning of the department. You will notice that the number of cases appears to increase as the years move on, but this does not mean that they are actually new cases, for we have, as a matter of fact, to realise that a good many of these

cases are repeat cases, that is, they go on coming up year after year, much to their benefit.

We now admit many fewer cases for operation on the urethra than formerly, and we keep their strictures fully dilated. The first rule that I wish you to learn in connection with the treatment of stricture cases is this: *Dilate the stricture up to* 18/22 as quickly as reasonably possible, *and keep it dilated to this size.* If you once start passing smaller instruments the patient is so much the worse by the diminution in the size.

I consider that what is known in the Genito-Urinary Department as "the 18/22 policy" has improved the condition of patients who are suffering from stricture in a really remarkable way. Mr. Rowlands tells me that he sees very few cases of extravasation of urine now in comparison with what used to be the case. I myself see far fewer strictures complicated by sepsis or other disease than I used to. The patients come up once a month, or at even longer intervals, and an 18/22 is passed every time; at last I am getting the dressers to be satisfied with this instrument alone as a means of treating these cases. I will tell you why I do this.

Not so long ago I found that certain cases were not doing well, and that the dressers were passing, previous to the 18/22, a smaller instrument. Now when a patient sees that the dresser is passing a smaller instrument than was passed before he becomes rather anxious, and his urethral muscle may go into spasm at once, and though the smaller instrument may be passed, the spasm is sufficient to prevent the larger one being passed.

The second rule that I ask you to recollect is: *When the urethra has been dilated to* 18/22 *never pass smaller instruments at first.* At other hospitals the authorities are accustomed to passing much larger instruments, but I cannot see that this really does much good, and it may only lead to the production of a cystitis, which complication is remarkably rare with us here at Guy's.

By using a very large instrument it appears to me that all you can do over and above what is done with 18/22 instrument is to break down the orifices of the numerous glands which open into the urethra. Moreover, you may break down these glands in a perfectly healthy part of the urethra and thus add to the trouble by your instrumentation. But we have only discussed the treatment of these cases after they have been dilated, and we now must consider the treatment of these cases whilst they are being dilated.

You are summoned to a man in the front surgery who has a difficulty in passing water. You will have him laid down on a couch and his trousers should be drawn down. Give yourself a reasonable chance of doing something for the patient. You will examine the meatus to see that it is of a reasonable size and you will examine the bladder region in order to find out if it is distended. Such an examination will only inspire confidence in the patient, and this is most essential. You will wash the end of the penis and you will try to pass an instrument that will go through the meatus without stretching it.

Now the next question for you to decide is whether the patient has got retention of urine or not. He will be able to tell you that he has or has not passed water.

The third rule is this: *If the urethra will not admit an instrument and he has retention you will have to take him in.*

Patients who are taken in with stricture may do very badly, as we shall see later, and, in any event, they may occupy a bed for a much longer time than the house surgeon thinks at all right. You can send out a patient who has not got retention even if you cannot get an instrument through the stricture, but you cannot send him out with retention if you cannot get an instrument into the bladder.

I am, of course, not discussing the differential diagnosis of the retention being due to an enlarged prostate. I am assuming that the case is one of stricture.

The fourth rule is: *If there is a stricture and retention you will pass the smallest instrument of which you have experience.* There is no harm in letting the fluid from the bladder off slowly.

The fifth rule is this: *Having passed an instrument, which should be pliable, you will tie it in.* The patient having been relieved of his retention can then be sent on to the Genito-Urinary Department.

Now, what ought to be done there? Two dressers will attend to the patient who has an instrument tied in. You notice that I speak of instrument, for in these cases a bougie is passed more easily than a catheter and is just as efficacious as a hollow catheter for drawing off urine from the bladder, as the urine flows by its side.

One dresser, after washing the end of the penis, will pass a rather larger instrument down to the stricture. The second dresser then removes the old instrument, and he does this slowly, and as he does it the first dresser pushes the new instrument through the stricture and into the bladder. This instrument is tied in, and the next sitting sees another instrument of a larger size passed, and if this goes in easily, as it will do, you may take it out and tell the patient to come up for regular dilatation.

The intervals between the passage of instruments varies with the nature of the stricture and the

patient's employment, and you have to judge accordingly, but some patients go as long as three months between the passage of the instruments, and some are better with only a month's interval. But let me repeat that once you have got up to 18/22 metal bougie, you will not decrease the size, but will keep to this number only, so far as you can.

Now every stricture is not so easy as the one I have described, and various efforts may have to be made, as it were, to cheat any anomaly the stricture may possess. Recollect that you will have to take a patient in to the hospital if he has retention and you cannot get an instrument into the bladder.

There are two useful devices for negotiating a difficult stricture. One is to use a small coudé catheter. This may get past a tortuous stricture or one that is situated to one side of the urethra. That is what I use a small coudé for. Such an instrument should never be used on a case of enlarged prostate.

The second plan, and one that is more useful in my hands, is to take a fine instrument and bend it twice near the point, taking care, should you take up a small catheter, not to bend it at the site of the hole at its end. The first bend is about $\frac{1}{4}$ in. away from the bladder end of the instrument, and the second one is about one-third of an inch above the first bend. This shaped catheter is called " en Baionette," *i.e.*, shaped like a bayonet in the gun. You will pass this down to the stricture, and then turn it round carefully through the various major points of the compass, carefully lifting the instrument up slightly as you pass through the various points. Having successfully negotiated the stricture in this way you must never take it out until you are prepared to put in another one of a larger size.

If these methods fail you must try and pass what are called filiform bougies; these are very difficult to use, and it is of no use trying to force them through as they only bend up.

I believe that the examiners at the College and elsewhere like you to try hot baths and applications, and perhaps it may be necessary for one to give an anæsthetic in order to induce a patient to pass his water from the bladder filled up with retained urine. An iodoform suppository in the rectum may also do good, but at the Out-Patient Department this form of treatment is very difficult to carry out, and when it is carried out is hardly worth the trouble when a case of old stricture is being treated. And very often it has been already tried outside. If you can use a catheter gently you had better get on with it, though at an examination you should be familiar with these medical means of treating strictures with retention.

Now when all efforts to get through the stricture have failed and there is retention, you will have to take the patient in. You should, however, bear in mind that these patients do not do well in the hospital, and I venture to assert that the reason is that far too much is done even when the patient is under an anæsthetic.

The sixth rule that I want you to observe is that *you should never do more with the urethra under an anæsthetic than you would do without one.* I am sure that rapid dilation under an anæsthetic is a very poor method of treatment; I gave it up long ago.

If with reasonable care and gentleness I cannot get into the bladder with the instrument, I at once open the bladder via the suprapubic route. I never puncture the bladder. One of my assistants in the early days of the department once punctured a bladder; the patient insisted on going out, and died in great agony, as I was informed, and I believe that he died of general peritonitis.

I need not labour the point that the peritoneum is only stripped up from the bladder wall almost exactly in the middle line, and that a puncture a quarter of an inch away from the mid-line, however full the bladder may be, may land the cannula in the peritoneal cavity. Moreover, I recollect one case, on which Mr. Lloyd and I operated on two different occasions for cystitis; on each occasion we found that the peritoneum was in front of the bladder and adherent to it, and was not stripped away as the bladder distended.

I should never puncture the bladder for a stricture with retention. Make a proper incision in the suprapubic region, see the peritoneum and strip it up, separating it also on each side, and then open the bladder. Never be tempted to open the bladder through the perineum in these cases of stricture with retention. The retention may be relieved by the operation, but the patient dies of ascending nephritis a few days after; at least, that is my experience of this type of operation after a perusal of a large number of post-mortem reports.

When you have opened the bladder insert a large tube and send the patient back to bed. In a few days' time you may try to pass an instrument with the greatest care. When you have done that, you should try to pass a larger one next day and gradually dilate the stricture. But recollect that the patient has just gone through a very grave crisis, and his kidneys may give out at any moment if you are rough in trying to pass too large an instrument at any time.

I do not see cases of retention with stricture and obvious local septic complications. But an abscess in the perineum and even extravasation

may occur when the patient has a stricture but is not suffering from retention.

Whenever in the old days I came back from my holiday, I was met by my house surgeon or a keen dresser with the news that they had in the ward a case of sarcoma of the perineum, and that they were keeping it for me to see. So little had the patient any sign of a stricture externally that he was passing water fairly well and showed no signs of retention. I used to have the patient up to the theatre at once and open the tumour, which always contained pus. Now this kind of history gives us a clue to the proper treatment. No stricture had been suspected, and nothing was done to the urethra in the way of the passage of an instrument, and this was what had benefited the patient so much that he was still alive. In these cases of perineal swelling due to an abscess in connection with a stricture, the external signs are those of a median, elongated, very firm and rather narrow swelling. There may be no redness and there is very often no fluctuation. The temperature may not be up and there may be very little pain. When you pass an instrument, which you should do with great caution and gentleness, you will find a stricture.

Now the seventh rule is this : *Do not dilate the stricture at once, but open the abscess as adequately as you can, and leave the stricture to itself.*

If the patient should have retention, and I have never seen a case of this condition being present, you must either dilate the stricture and leave the abscess alone or you must open the abscess and leave the stricture alone, but you must not do both together. The second plan is much the better one, and therefore we shall have another rule. It is this :—

When a patient has a stricture and a perineal abscess you will deal with one or the other, but not both. If there is retention, which is very rare, you will open the abscess, but you will also perform suprapubic cystotomy, and not deal with the stricture until the wound is no longer infective.

I do not believe that extravasation of *urine* actually occurs, but that what has been confused with it is a rapid spreading cellulitis of the perineum and surrounding parts. Urine may get into the affected region, but I do not believe that it is a primary condition. If such a cellulitis is present and there may be a stricture, I should not touch the urethra at all, but incise over the affected area of cellulitis freely and place sulphur in all the wounds in bags of gauze, so that it may be removed on the second day quite easily. If necessary, I should perform suprapubic cystotomy.

Now it may interest you to know why I do not touch the stricture in these cases until all active sepsis is at an end.

Sir Cooper Perry made the important observation that in cases of stricture with so-called extravasation, in which the perineum and urethra, and in some cases the bladder, had been opened by the perineal route, the bladder was perfectly healthy, but that there was an advanced degree of ascending interstitial nephritis with the formation of abscesses in the kidneys. The lymphatics of the urethra pass to the base of the bladder and thence to the outside walls of the ureters, and so to the capsule and interstitial tissue of the kidneys. Thus, by opening the septic area near the stricture and at the same time treating the stricture, you may infect these lymphatics and cause the death of the patient by producing a renal infection.

If you wish to relieve the retention, open the bladder above the pubes, as here the lymphatics do not drain into such an important area as the renal group. After the sepsis has subsided you may dilate the stricture.

There are some cases of stricture that are very painful, and perhaps in such cases local anæsthetics may be useful, but I feel sure that if local anæsthetics came into common use much damage might be inflicted on the urethra and adjacent parts.

Mr. Gaymer Jones told me of the following case. A patient was admitted under the care of his chief at Guy's Hospital, with some form of stricture. The patient decided to go to a special hospital for treatment, and the stricture was treated under a local anæsthetic. The patient returned to Guy's shortly after this and was clearly suffering from general peritonitis, and died of this disease. At the autopsy the peritonitis was found to be due to a wound of the urethra, passing through one side of the prostate and into the peritoneal cavity.

Before we leave the question of stricture and its treatment, I wish to mention three things you must prevent, viz., bleeding, pain and sepsis. We find that through all the years there has hardly been one case of sepsis caused in the department. Pain occurs occasionally, but the most important thing that you must try to avoid is bleeding. This always means trauma, and in some cases the production of a false passage.

Of the three things that you have to avoid in passing an instrument, trauma is the most important, and I would far rather find that a dresser had failed to pass an instrument and had not caused any blood to flow than that I should find that his instrument had entered the bladder but had drawn blood.

Minimise pain by gentleness, get rid of sepsis by the use of some mild lysol. Avoid hæmorrhage by making the end of the instrument in the urethra merely a prolongation of your finger and attend to anything that may be conveyed to that finger or hand

Some of you may raise the question of the use of the urethroscope for seeing and treating the stricture, but though this may be a useful instrument you must recollect that it is a very large one, when really useful, and I hope that I have made you consider that the passage of a large instrument in cases of stricture may do a very great deal of harm.

We may now pass on to consider the question of prognosis in cases of stricture. When we see a case of retention of urine we very often say that if the patient is young we have to deal with a case of traumatic stricture; if middle-aged or approaching middle age we say that the patient has a gonorrhœal stricture. If elderly or old, we say that he has got an enlarged prostate. But though this classification is a good practical one, it must not be too blindly followed.

In addition to those cases which commonly produce retention, we have also to consider the question of there being present some nervous disease, such as tabes, or that too much fluid may have been taken. It is quite curious to note through the years how on Sundays and at holidays retention may come on without any of these obvious conditions being present. But in addition to these considerations we have to take into account that any of them may be present in a patient with retention.

Per contra, stricture may occur at an advanced age, and patients as old as 75 or more have been treated for stricture properly and successfully. From the fact that some of the patients suffering from stricture are quite old people, we must regard at any rate some forms of stricture as not shortening life.

I well recollect a man who had been an irregular attendant at Out-Patients for a long time, and who was seen by me again not many years ago; in spite of a stricture of long standing, he was not very ill with it though he was well over 70. I thought that he would not stand much in the way of dilation, and accordingly just dilated the stricture to about No. 6 English size. He asked me to dilate it more, but his kidneys were none too good and I did not think that he would benefit very much from a wider dilatation, so I left him at that. I think now that I was wrong, and one might have dilated him very slowly. I never saw him again, but there is no doubt that he had lived a very tiresome existence, and would have risked anything to have made his life more comfortable.

As to the onset of symptoms of stricture after the initial attack of gonorrhœa, let me record the case of one of our oldest patients as to years of attendance, though even now he is not middle-aged.

F. R., æt. 25, a carman, and quite unable to attend the hospital regularly. He had gonorrhœa in October, 1912, which he says was cured in five months. One Sunday in the middle of July, 1913, he had difficulty and scalding in micturition. A bougie was passed and a stricture found, it is said, quite close to the prostate, *i.e.*, much further down than usual.

At first only a small coudé could be passed, but later he was dilated up to 16/20 metal bougie, but even at this date, though it is noted that the instrument could be passed easily, there was much pain when the instrument was passed. I am inclined to think that the recorded situation of the stricture may be of great importance, as it is well known that the prostatic region of the urethra is very sensitive to stimuli, and also very quickly absorptive. The adjacency also of the compressor urethræ may have led to painful spasm.

Like many young men who have instruments passed upon them, and also owing to his work, he did not come for some nine months after the last attendance in 1913. He was in May, 1914, admitted to Lazarus Ward for retention, and after opium had been administered and hot fomentations used, he passed some water naturally. It is noted that on 17th May, 1914, he still had some gleety discharge, and though a No. 3 olive-headed bougie was passed easily, a small metal bougie produced great pain. Later in the same month of 1914 a No. 7 olive-headed bougie was passed with some difficulty.

We heard nothing of him till 1918, but, though he may have taken part actively in the war abroad, I think he stayed at home and continued his work. This involved his being out in all weathers; furthermore, the constant sitting on his box would lead to great irritation of the parts adjacent to the stricture.

In May, 1918, he was again admitted under the care of Sir Alfred Fripp, and I did a suprapubic puncture, though I do not do it now, and passed and tied in a No. 1 olive-headed catheter. He was dilated up to a No. 12 English size, and the stricture was recorded as being resilient. I should not describe it as that now. He was seen in 1919, when the urine was quite clear. He again absented himself for some six months and came again in 1920, when small instruments were passed. The same intermittent treatment was adopted through the following years, but, when making these notes, it was obvious that something must be done to ensure more regular attendance. The patient was warned of the difficulty and danger of non-attendance, and I am glad to say that he has been more regular, and, as a consequence, is kept dilated as a rule up to 18/22. There is still much pain on trying to pass the instrument. He might be one of the cases suitable for a local anæsthetic, but at present I

should be afraid of the possibility of a false passage. He passes his water well.

Here is another case, over the treatment of which there was no real control.

T. T., aged 58, in 1915, and a Guardian of one of the neighbouring parishes to Guy's. He gave a history of having been to another hospital for 16 years, on and off. These on-and-off patients you will try to discourage.

He had a stricture divided by internal urethrotomy in 1912, and came to us at Guy's in 1915. Sometimes he remained long enough with us for us to work him up to 18/22, but he always went away just as the treatment was beginning to be successful. Owing to his official position, he was averse to coming into Guy's Hospital, but used to go elsewhere at times. Eventually he went to another hospital, and when he came back to us here it was almost impossible to pass other than quite a small instrument.

He promised to come into Guy's for further treatment, but did not do so, and I saw him later when we could only get in small instruments. He would not do what we suggested, and left us in 1926. I believe that he lived to 1930, when he died in March, aged 73. This is the type of case that recalls old times, and fortunately such cases are very rare nowadays.

When a small instrument is got through the stricture that stricture ought to be fully dilated up to 18/22 within three weeks, and the patient set on his way to an active life. I think it is a good thing in these cases to tell the patient at once when you see him with the small and tight stricture that he is much worse than he suspects, and that regular treatment over a prolonged period of time is essential for a good result.

I have many patients, as you will see from the graph that I have made of my out-patients, who come regularly once a quarter just to have their strictures kept dilated. That the patients themselves realise the importance of coming regularly is proved by the increase in the number of "repeat" cases from year to year. For this continued dilatation the metal bougie of Mr. Clutton is far and away the best instrument to be used.

I frequently find dressers who imagine that strictures are often multiple. These multiple strictures occur most frequently when I am away on holiday. They are, in my opinion, very rare indeed, though I do not deny that they occur. I believe that the wrong diagnosis is arrived at through mistaking spasm which is induced in the patient's urethra, owing to careless passage of an instrument. I frequently see cases in which a 16/20 will pass easily, but 18/22 is gripped tight. Now the difference between the calibre of the two instruments is not very great, and I believe that the passage of the smaller instrument has led to spasm, and that this spasm prevents the passage of the larger instrument. Therefore, when you have got up to 18/22 do not pass a smaller instrument first. This plan may mean the beginning of the constant passage of smaller and smaller instruments, until at the end of the year the patient may be worse off than at the beginning. I always endeavour to see these patients at least once a quarter, so as to be sure that they are not going back.

Let me now warn you that stricture may give rise to symptoms that are suggestive of inflammation of the higher regions of the urinary tract. I recollect a case very well of a patient who presented signs of pyelonephritis. He was running a temperature and was very ill when I saw him.

I was called in to do a cystoscopy, and found that the cystoscope could not be passed. I dilated him up, and eventually did an internal urethrotomy. He lost all his bad symptoms, and when I last saw him he was doing his work well. He himself had not discovered that he had a stricture, and I suppose he had a good strong bladder which was able to overcome the stricture, and thus gave rise to no symptoms of difficulty. Frequently hæmaturia may occur with strictures, and this may be due to sepsis passing back to the bladder, not owing to instruments, for this is exceedingly rare at Guy's, but owing to the presence of organisms in the urethra and the constant wearing of the parts by the strain of passing water.

It is a great gratification to me that cases of cystitis as a result of treatment at Guy's are exceedingly rare, and I attribute this to the fact that the dressers realise at an early period of their all too short time in the department that force must never be used, and that the last thing that ought to be seen with the passage of an instrument is blood. If you get blood with the dilation of a stricture, you may be signing the death-warrant of the patient, and this is even truer of enlarged prostates.

Other forms of stricture occur than those due to gonorrhœa. These strictures are traumatic and syphilitic. There is another stricture, which, as the years roll on at Guy's, seems to me to have received scant attention, namely, stricture occurring at the meatus. These may be due to an old chancre, in other words they are syphilitic, but some are associated with chronic inflammation near the meatus and may be accompanied by a long foreskin and phimosis, with balanitis and posthitis.

Traumatic strictures form about one-tenth of gonorrhœal strictures. Meatal strictures form less than this proportion, but further consideration of these conditions must form the subject of my next lecture.

Cases Illustrating Modern Methods in the Diagnosis of Early Pulmonary Tuberculosis

B.M.A. Prize Essay by Hyman Bloom, Esq.

INTRODUCTION

THE early diagnosis of pulmonary tuberculosis is one of the most important problems of clinical medicine. More than in any other disease the success of treatment depends upon early diagnosis, but, unfortunately, in the majority of cases, the first symptoms may be so slight that the average person seeks medical advice only when the disease has long passed the incipient stage. Nevertheless, the early case is frequently seen, particularly in examination of contacts and insurance patients. The difficulty in routine and insurance examinations is that the patient cannot help to direct attention to the disease so that incipient tuberculosis in apparently healthy people may be, and often is, overlooked.

The diagnosis is a problem only of adolescent and early adult life, since true pulmonary tuberculous lesions are rare before the age of 15. Infection with the tubercle bacillus is, according to Opie, practically universal, so that one of the problems in diagnosis is the demonstration, not of infection, but of actual clinical disease.

Judging by experiences at Guy's and Brompton Hospitals and Frimley Sanatorium, modern science has not yet pointed out the royal road to diagnosis. Most of the strictly modern aids have been given extensive trials, and finally abandoned, with the exception of the X-rays. Apart from this one exception, the tendency has been, in fact, retrograde. I hope that the following examples of early cases will prove the truth of these statements, and in the discussion there will be pointed out the advantages and limitations of these methods and the conditions under which they are used.

CASE I.—V. T., æt. 25, female.

18th October, 1930. Came to Out-patients for gradually increasing lassitude, loss of appetite and cough. She was apparently quite well one month before, and now has ½ oz. of mucoid sputum per day, occasionally specked with blood. She has some dyspnœa on exertion and a pain in the left shoulder. Voice occasionally husky. Lost 7 lb. in last month. The menstrual loss has gradually been diminishing.

Personal and Family History.—Lives at Harrow. Working-class home. Husband and two young children alive and well. No family history of tuberculosis. Mother died of "bronchial catarrh," sister of "influenza."

Previous Illnesses.—Nil, except measles when she was a child, and influenza in 1923.

On Examination.—Pulse 98. Temperature 98.6. Weight 8 st. 6 lb. Patient is not very robust, does not look well, and is somewhat anæmic. A very careful examination of the chest revealed *no* abnormal physical signs.

X-Ray Examination.—Breathing mainly thoracic. Heavy root shadows. Scattered infiltration of upper and middle zones of right lung.

Sputum.—No tubercle bacilli could be detected on two successive occasions.

This case has been chosen because, with its insidious onset, it reveals a picture typical of at least 75 per cent. of cases, and at the same time it shows many features interesting in themselves. The earliest symptoms had been forgotten or disregarded in the stress of household duties, although she admitted feeling "below par" for some time before. Any one symptom may bring the patient up for advice, but on careful questioning a story similar to the above is nearly always obtainable. This case also illustrates a frequent complaint for which women consult a doctor. Anæmia with diminishing menstruation or even amenorrhœa may be the first symptoms of the disease. Her dyspnœa was not marked, even on exertion, but even in more advanced disease this symptom is remarkably absent. As a prominent symptom in a young patient it is usually due to an insidious effusion or to a spontaneous pneumothorax.

An anal fistula or ischio-rectal abscess may sometimes be the first manifestation, and I remember one patient, giving a very strong family history of tuberculosis, taken in for operation. A routine X-ray of the chest showed definite and quite unsuspected disease.

One very seldom encounters true night-sweats, except in very advanced disease. It is seen in some cases of hyperthyroidism simulating tuberculosis, but in most cases "sweating" is due to an excess of bed-clothes. Sweating of the palms is fairly common, and was marked in this patient.

Often a series of colds precede the one which fail to clear up, leaving the patient with a troublesome cough and, perhaps, other suspicious symptoms. Frequently the patient "has not been quite the same" after influenza or has had a protracted convalescence from illness. Vague gastric

disturbances labelled "indigestion" or "dyspepsia" always justify a careful examination of the chest.

An acute onset with pleurisy or effusion, or simulating a severe chill or influenza, will always bring the disease under medical observation, often at an extremely early stage. Similarly, a hæmoptysis in an apparently healthy young person is never passed over. The following case, illustrating this mode of onset, presents many unusual features which will be discussed later.

CASE II.—C. M., æt. 23, bank clerk, male.

25th October, 1930. Present illness began a month ago with slight night and morning cough and very scanty yellowish sputum. Hæmoptysis of dr. i two weeks before and another of dr. ii a week before above date. He has had blood-streaked sputum since. He emphatically denies loss of appetite or energy and he feels perfectly fit. An outside laboratory report on his sputum, taken immediately after the first hæmoptysis, revealed "T.B. in very small numbers."

Family History.—No history of phthisis. Nothing important.

Personal History.—Lives in suburbs and travels to City daily, working in a very stuffy office. Leads a strenuous outdoor athletic life.

Previous Diseases.—Measles and mumps in childhood. "Flu" for two weeks in 1929. Otherwise very fit.

On Examination.—Pulse 92. Temperature 98.2. Weight 11 st. 11 lb. Patient is a well-built, robust, athletic man. *No* abnormal physical signs could be detected on very careful examination.

On Admission.—3rd November, 1930. Very slight diminution of movement at the left apex was found, but nothing else.

X-Ray Examination.—Diaphragm moves freely and well. Right lung: infiltration of upper zone. Left lung: scattered infiltration of upper and middle zones.

Dr. i sputum per day. Gained 2lb. in two weeks.

The third case is instructive in that the patient has been under observation for 18 months since the onset of the disease. In addition, it is illustrative of many important principles in diagnosis.

CASE III.—H. M., æt. 18, male. Assistant in the Pathological Laboratory.

Admitted on 9th August, 1929, for a sudden, sharp, burning pain in right side of chest, felt on day before while running upstairs. There was some dyspnœa, but both pain and dyspnœa passed off when he rested.

Personal and Family History.—Lives in Bermondsey. Was laboratory assistant for two years. Has always led an active life. No family history of phthisis.

Previous Illnesses.—"Bronchitis," measles and whooping-cough when a child. Otherwise perfectly healthy.

Present Illness.—Had pain in right shoulder three months ago, but disregarded it. He denied any loss of weight or appetite, and has had no cough.

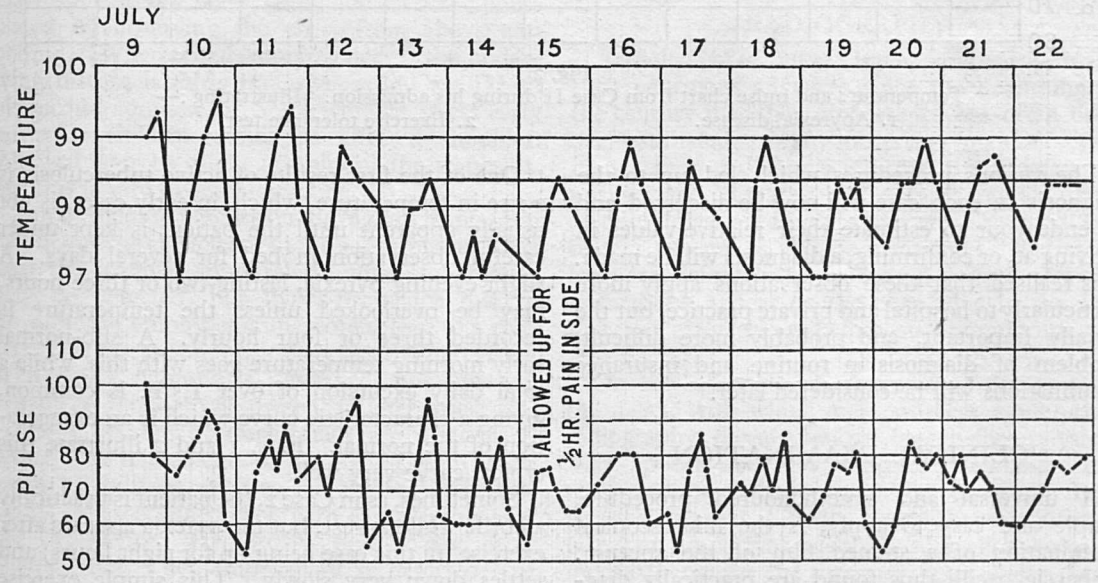


Fig. 1

Temperature and pulse chart (four-hourly) from Case III on his first admission. Illustrating:—

1. Low early-morning temperature.
2. Evening temperature, transient.
3. Daily excursion of more than 1.6 F.
4. Extreme variability of pulse rate.

On Admission.—Pulse 100. Temperature 99. Respiration 22. Blood pressure 105/72. Patient is a well-built, healthy young man. There were signs of a right-sided pneumothorax, with very little shifting of the heart.

X-Ray Examination.—Partial pneumothorax on right side. A small "ring shadow" at the left apex.

Patient gained 2½ lb. in three weeks. After four months at a sanatorium he came back to work feeling perfectly well, but had a hæmoptysis of ½ oz. on April 11th, 1930.

On Re-admission.—There were definite physical signs at the left apex; diminished movement, increased voice conduction and bronchial breathing. Fig. 6 is a radiogram after an A.P. on the left side had been induced. No tubercle bacilli had ever been detected, either in the hospital or the sanatoria, on repeated examinations.

most important fact, with which most investigators agree, that their continued absence does not contra-indicate phthisis. Their appearance in the sputum is preceded by an early stage, giving definite symptoms, in which the pulmonary lesion is still "closed." Bacilli appear in the sputum only when a "closed" lesion becomes "open," which may be signified by hæmoptysis, as in Case II, or by the sputum becoming definitely purulent.

Hence it should be stressed that negative results in early cases with scanty, non-purulent expectoration are of little significance, whereas, if the sputum be purulent, repeatedly negative examinations are very definitely strong evidence against tuberculosis.

When repeatedly negative, the sputum may be concentrated by the "antiformin" method, but at Guy's Hospital, at least, positive results have very rarely been obtained after this procedure.

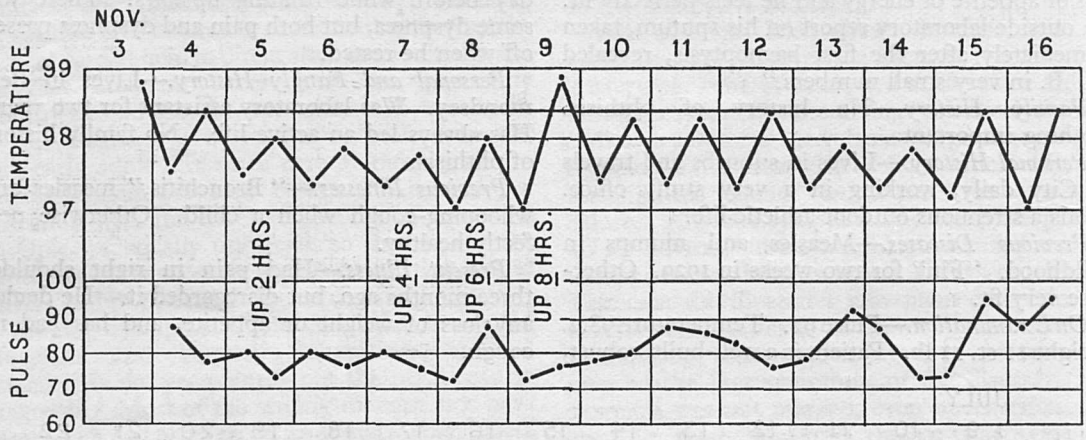


Fig. 2
Temperature and pulse chart from Case II during his admission. Illustrating :—
1. Apyrexial disease. 2. Exercise tolerance test.

The various procedures which led up to the diagnosis in each case will now be discussed and an endeavour to estimate their relative values in arriving at, or confirming, a diagnosis will be made. It is realised that these observations apply more particularly to hospital and private practice, but the equally important, and probably more difficult, problem of diagnosis in routine and insurance examinations will be considered later.

CLINICAL EXAMINATION

A universal and time-honoured procedure, simple and easy to apply, is the microscopical examination of a stained film of the sputum. Tubercle bacilli thus found are practically diagnostic; yet in two of the three cases the sputum was consistently negative, in Case III over a period of nearly two years—thus illustrating the

One of the first results of active tuberculosis is a rise in temperature, which, in early cases, is not usually apparent until the patient is kept under careful observation in bed for several days. A slight evening pyrexia, lasting two or three hours, may be overlooked unless the temperature is recorded three or four hourly. A sub-normal early morning temperature goes with this, while a total daily excursion of over 1.5 F. is common, giving a characteristic curve which is an exaggeration of the normal. Figs. 1 and 2 illustrate this typical curve very well.

Sometimes, as in Case 2, the patient is practically afebrile while at rest, but the pyrexia appears after exercise (in this case being up for eight hours) and settles down very slowly. This simple exercise tolerance test provides most important information, and is extremely suggestive of a tuberculous toxæmia.

The value of the pulse record as an aid to diagnosis is not sufficiently realised. Tachycardia is invariably present in every case, even in the earliest stages, and is always out of all proportion to the temperature. In Case I the pulse was 98 when first seen, and Figs. 1 and 2, although complicated in Case III by a pneumothorax, illustrate this, and also the characteristic extreme variability and susceptibility to exercise and other factors.

A routine examination of the blood-pressure is, unfortunately, not practised in many out-patient departments, but one is often struck by the frequent occurrence of an extremely low systolic pressure in tuberculous subjects. In Case III a pressure of 105 is distinctly low, and this constitutes very valuable confirmatory evidence. Dr. Marshall notes a frequent general diminution of muscular tone, which was present in Case I.

PHYSICAL SIGNS

One of the most notable features of the cases is the absence of physical signs. It follows at once that the stethoscope is almost, if not absolutely, useless in early diagnosis. This sweeping statement will be justified in the following discussion.

One does not often see the long, narrow "phthinoid" chest of the patient described as likely to develop pulmonary tuberculosis. A fairly common finding, and the only sign detected in Case II, is slight limitation of movement at an apex. Delayed expansion occurs before this, and is best appreciated by observing the chest from above and behind. When actual flattening occurs the underlying disease is fairly extensive, as in Case III on his second admission. Some workers stress early muscular rigidity round the affected shoulder, followed later by slight atrophy of the trapezius, but this is rare in actual practice.

Impairment to percussion during full inspiration just below the clavicle, or in the supraspinous fossa near the scapular spine (alarm zone of Sergent), may be detected, but hyper-resonance due to surrounding emphysema may often lead to a suggestion of disease on the healthy side. A narrowing of Kronig's isthmus is described, but this will usually be found to be present in later cases.

Slight degrees of impairment are difficult to detect, and refinements of percussion, with reflex bands of dullness, such as Dr. Riviere describes, cannot be ascertained even with considerable skill and experience. Dr. Burrell goes so far as to suggest that, when impairment is detected, the disease is no longer early.

Many writers describe harsh inspiration, "cog-wheel" breathing and prolonged expiration, before râles, which are at first brought out only on coughing, are heard. When râles occur in ordinary breathing the disease has long passed the incipient stage.

Turban and others suggest bewildering multitudes of additional details. Far too much importance has been assigned to these slight and equivocal physical signs, most of which are present in many other conditions and in healed tuberculosis. One meets at Out-patients a large number of patients with impairment and râles at an apex. Most of these were due to what Fishberg describes as "collapse induration of the apex," secondary to nasal conditions or septic tonsils. Two or three were thoracic neoplasms. As the former class are extremely frequently encountered, I suggest that the stethoscope, from being an almost useless instrument in this respect, may become positively dangerous in condemning patients to rigorous and sometimes definitely harmful sanatorium treatment for conditions much more quickly cured on other lines. Neither patients nor doctors are inexhaustible, and every doctor must be able to diagnose tuberculosis long before he becomes expert with his stethoscope.

Finally, I must stress again that physical signs, however carefully sought, are more often than not entirely absent, on account of the depth of the lesion, its smallness and the fact that it may be surrounded by emphysema. Negative findings are the rule, and do not contra-indicate even extensive disease.

RADIOGRAPHY

Radiological technique and apparatus have made such enormous advances since the beginning of the century that their importance has often been over-estimated. Many observers maintain, that in no cases do X-rays indicate the presence of unsuspected disease. The cases quoted were certainly diagnosed before they were X-rayed, but certain exceptions will be mentioned. Tuberculosis can definitely be diagnosed before any abnormalities appear on the plate, due to the fact that very early lesions, before caseation occurs, are transparent.

On the other hand, these cases demonstrate the facts, with which most workers agree, that radiography reveals lesions long before physical signs appear, and also indicates much more extensive disease than would be expected from physical signs. Finally, X-rays have justifiably taken an important place in diagnosis because most patients, by the time they seek advice, have lesions easily demonstrable on a film.

An important part of the radiological examination is the screening. Failure of one apex to "light up" on coughing could not be observed

with certainty in Case I, and unfortunately could not be demonstrated in Case II on account of the bilateral nature of the disease. One sometimes sees restricted or uneven movement of one side of the diaphragm, but this is uncommon in early disease.

The interpretation of the film demands considerable experience. In Fig. 6 the only radiographic evidence, apart from the pneumothorax, was a small "annular" shadow above the left clavicle. These shadows, which are said to be due to areas of emphysema in the lung, are as diagnostic of tuberculosis as the more extensive pneumothorax in the same film.

Some radiologists attach great importance to the "long, narrow" heart of phthisis. This is not present in any of these cases, but it is certainly not uncommon. From an analysis of 1,000 cases post-

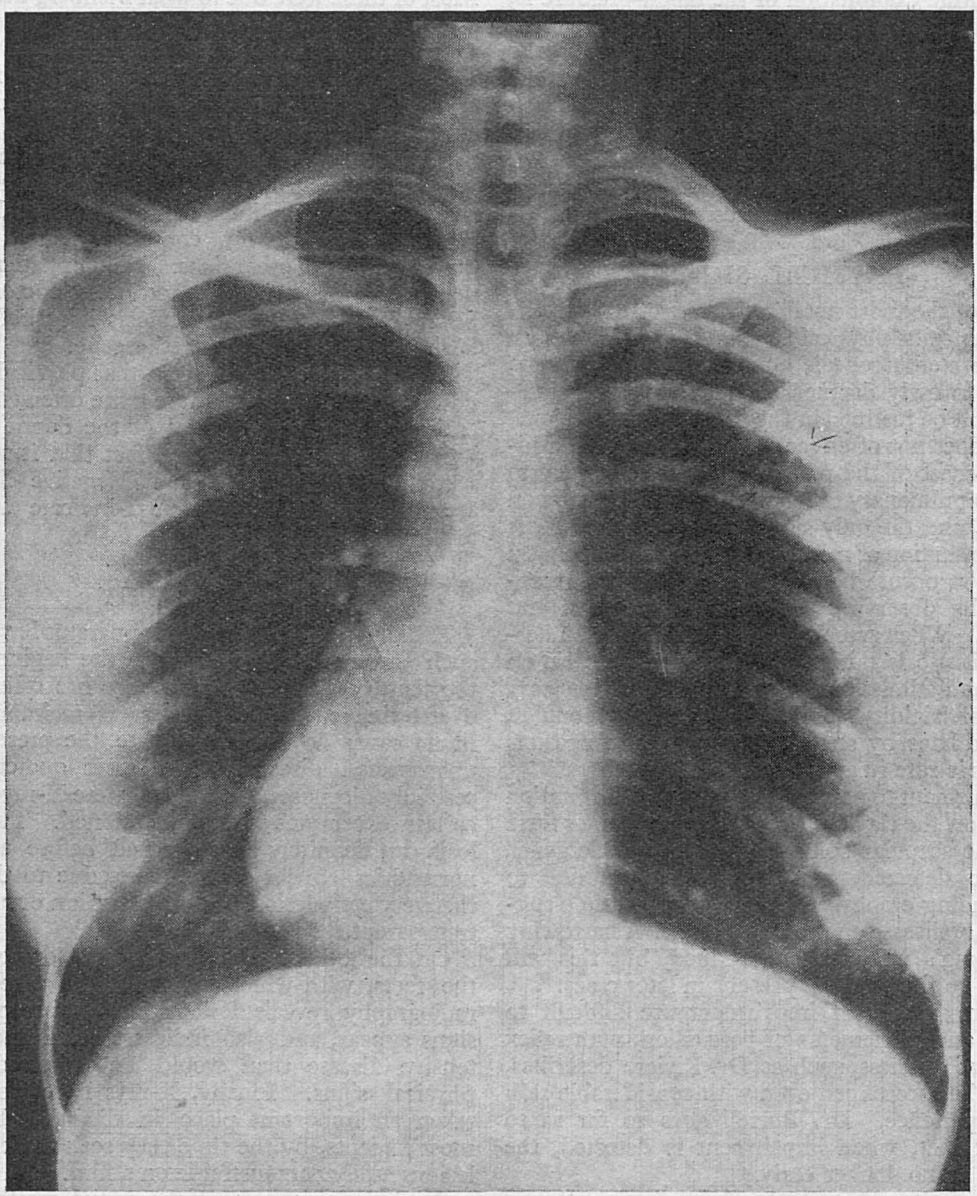


Fig. 3

Radiograph from Case I. No physical signs. Breathing mainly thoracic. Heavy root shadows. Scattered infiltration of upper and middle zones of right lung (surrounded by arrows).

mortem, Drs. Latham and Melville considered this " toxic " heart indicated a grave prognosis.

In a certain number of cases, the X-ray appearances may be particularly deceptive, and Dr. Marshall, at least, insists upon their interpretation in the light of the history and symptoms of the case, and has made negative diagnoses even in the face of suggestive X-ray evidence. Apart from healed lesions, which throw typically dense and well-defined shadows, many other conditions, particularly the pneumonokonioses and broncho-pneumonias, give X-ray appearances practically identical with those produced by tuberculosis.

The root shadows are abnormally large in all the quoted cases, but most observers attach no importance to this evidence of "hilus tuberculosis" in adults, when the rest of the lung is normal. The root shadows are secondary to the pulmonary lesion,

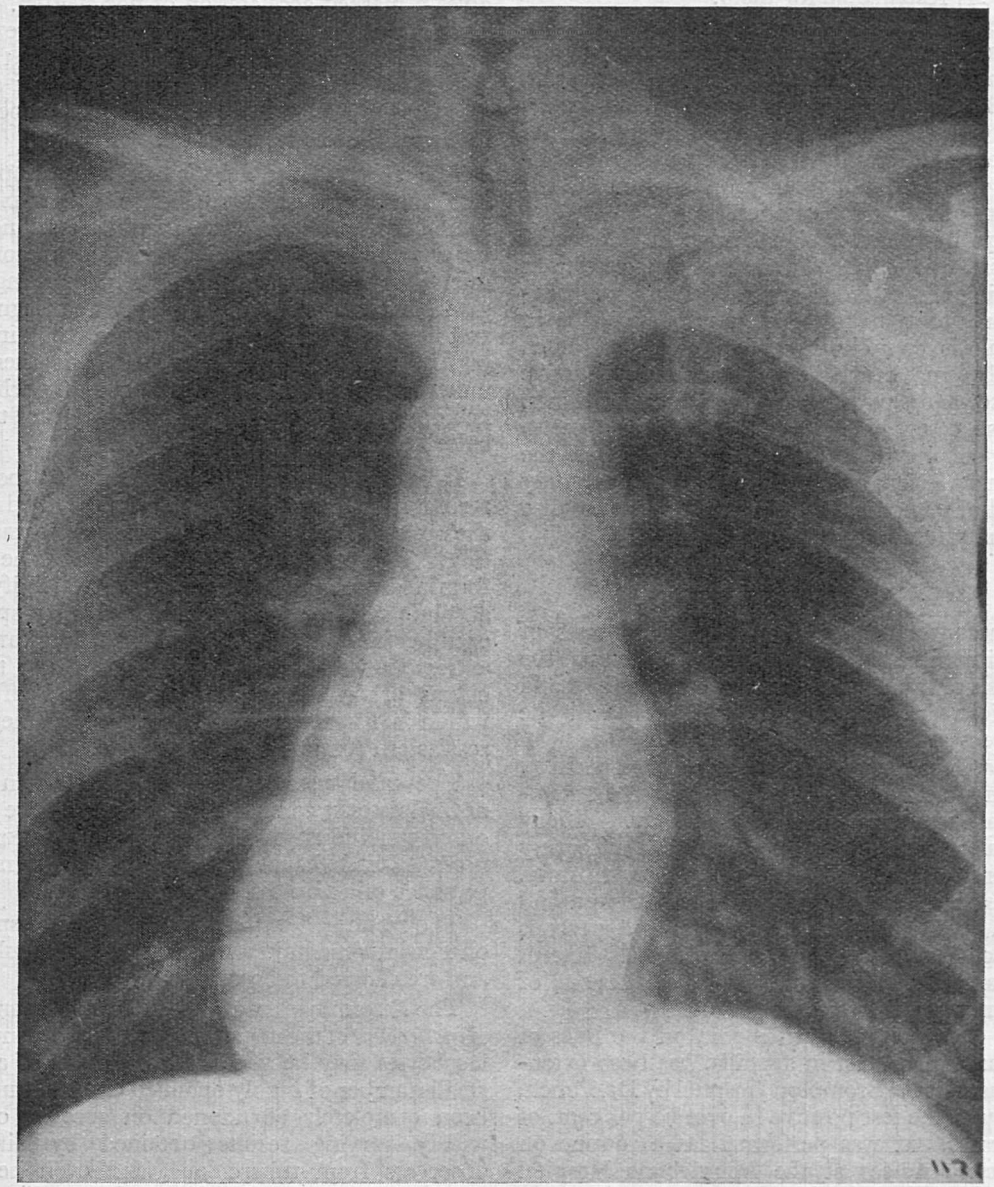


Fig. 4

Radiograph from Case II. No physical signs nor symptoms except hæmoptysis. Diaphragm moves freely and well. Right lung : infiltration of upper zone. Left lung : some scattered infiltration of upper and middle zones.

as is particularly well illustrated on comparing Figs. 5 and 6. In elderly patients, however, "senile" tuberculosis, a rare form, begins near the roots, is invariably bilateral, and spreads extensively outwards without producing signs until just before death. Thickened bronchial shadows, called by some "peribronchial tuberculosis," are frequently seen in chronic bronchitics, and often in perfectly healthy town-dwellers, and there is no real post-mortem evidence that tubercle is responsible for them.

Stereoscopic X-rays have been used at Brompton Hospital, but experience with ordinary films gives more information. Very small cavities, occurring even in early disease, are very difficult to detect, and attempts have been made to inject lipiodol into them. The results have been very disappointing in this hospital, mainly on account of the difficulty of filling the cavities.

X-rays have an additional value in differential diagnosis, particularly in pulmonary conditions producing suggestive signs and symptoms. Furthermore, they are also of inestimable value in tuberculosis complicating other conditions such as emphysema, bronchitis or pneumonia, or active foci elsewhere, particularly surgical tuberculosis. In these cases, which are far from infrequent, symptoms may be due only in part to the pulmonary lesion, and radiology may be the only method of detecting the existence or absence of a pulmonary focus.

LABORATORY TESTS

Numerous chemical and biochemical tests of theoretical interest have been applied to the diagnosis of tuberculosis, and their indications and limitations in the following section will be discussed.

Perhaps the most useful one, and, when positive, affording most convincing proof, is the microscopical investigation of the *fæces*. Many times a diagnosis is clinched by the discovery of tubercle bacilli in fæces treated with antiformin. The test is particularly valuable in children and women who swallow their sputum, perhaps unconsciously, and deny its occurrence. Except in advanced cases, actual tuberculous lesions of the alimentary tract are almost unknown.

The *Complement Fixation* test, on the lines of the Wassermann test in syphilis, has been extensively used at the Brompton Hospital by Dr. Punch, who found the test positive in over 90 per cent. of early cases. It was performed as a routine on prospective nurses at the Marylebone Hospital during 1924-27 inclusive. It was positive in 4 per cent. of those cases in which the routine clinical examination revealed nothing, and in all these, with the exception of two or three cases, subsequent careful investigation revealed active tuberculosis. These cases certainly suggest that the test is extremely valuable, particularly in routine examinations, but results at Guy's have been disappointing.

A more recent laboratory method, originated in France, and claimed to give by far the best results, is *Verne's Resorcin* test. It is practically specific for tuberculosis, and even in very early disease gives a marked acceleration of flocculation. The great advantage of this test over all others, except, perhaps, the temperature observations, is that it distinguishes between infection and early active disease, for a healed tuberculous lesion does not influence the flocculation rate.

The *subcutaneous injection* of washed sputum into the groin of tubercle-free guinea-pigs is sometimes employed. An inguinal swelling appearing within two or three days is due to secondary infection and soon disappears, but enlarged inguinal glands noticed in two weeks are taken as diagnostic, and may be confirmed at the time by obtaining a positive reaction to tuberculin. It is therefore unnecessary to wait another month, when a necropsy on the animal will show typical tuberculous lesions.

It is found at Guy's Hospital that positive results have only very rarely been obtained when the sputum is negative to microscopical examination. The negative results in this and the antiformin concentration method fully justify the absolute reliance placed on the ordinary sputum examination. Animal inoculation is, however, extremely valuable in demonstrating the tuberculous origin of an idiopathic pleural effusion, which is usually sterile, but even here negative results are common.

The *vital capacity* of the lungs, when subnormal, is only confirmatory evidence, since many other conditions produce a similar variation. A normal vital capacity, however, renders the presence of active disease very unlikely.

The results of *antiformin culture* of the sputum on Petroff's medium are quicker than inoculation, and are claimed to be very satisfactory.

The determination of the *opsonic index* and the *Arneth count* of the nuclei in the polymorphonuclear leucocytes may be useful in the hands of a very small number of highly qualified experts, but have been completely abandoned on account of the widely varying results obtained by different observers from tuberculous, and even healthy, persons. Moreover, the limits of normality easily include the variations in early disease. Similar remarks apply to the *sedimentation* and *agglutina-*

tion tests, which only give definite results in more advanced cases easily detected on ordinary examination.

Finally, Dr. Oriel, working with the *auto-injection* tests of urine and serum, found that only advanced cases gave unequivocal results.

TUBERCULIN

The value of tuberculin in diagnosis is seriously discounted by the fact that at least 50 per cent. of healthy adults give a positive reaction, which does not distinguish between past infection and present clinical activity. The theoretical advantages are many, but clinical experience is against its use in diagnosis, except in young children and in surgical tuberculosis. Some advocate its use in doubtful pulmonary cases, when a negative reaction is of the utmost importance in excluding disease. The exercise tolerance test gives results identical in principle, namely, a slight increase in the toxæmia.

The most delicate test is the *Von Pirquet*, a positive reaction to which is only of value in the first year or two of life. A quantitative test, using varying dilutions of tuberculin, is utilised, particularly at the Margaret Street clinic, but the extreme delicacy of the original test leaves no room for any refinements in technique. Moreover, the reactions of different healthy individuals vary enormously with the same dilution of tuberculin.

The *intradermal*, or Mantoux, test is used at Guy's and Brompton Hospitals, but only in young children. A positive response to small doses suggests recent activity in these cases, but I have never seen the test applied to adults.

Some authorities advocate the *subcutaneous* tuberculin test, which, when positive, produces in addition a general reaction of a temporary rise in temperature, and rarely an increase in the focal signs and symptoms. Dr. Marshall states that there is a real danger of lighting up a serious exacerbation, apart from the inadvisability of adding a massive dose of toxin to an already overloaded system.

Calmette's *conjunctival* test has been generally abandoned, because serious inflammation has followed its use in many cases. Its advocates, too, admit its failure in incipient cases.

After thus shortly describing the various tuberculin tests, my contention is that their use is never indicated. In the very few cases in which doubt as to diagnosis exists, the simple exercise tolerance tests give results at least just as reliable and certainly much less dangerous. Moreover, the frequency of a positive response in healthy adults does not justify their use in diagnosis.

Turban suggests, in doubtful cases, or when tuberculin is refused, the simple expedient of administering expectorant doses of potassium iodide, which, he affirms, intensifies the symptoms and signs, and in positive cases produces sputum

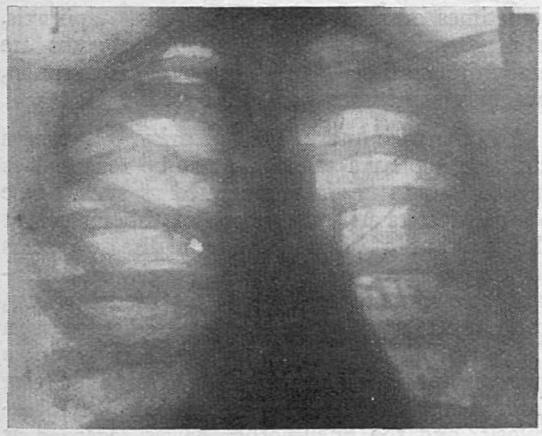


Fig. 5

Radiogram from Case III. First admission. Partial pneumothorax of right side. No evidence of tuberculosis or adhesions. On close inspection of the original film, a small "annular" shadow is seen just above clavicle on left side.

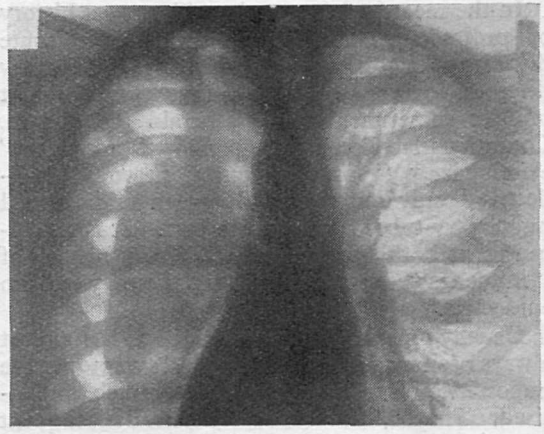


Fig. 6

Radiogram on re-admission nine months later after hæmoptysis; induction of left A.P. Physical signs at left apex. Left apex held up by adhesions. Larger "annular" shadow. Increased striation from root to left apex. Still no abnormality in right lung.

N.B.—Very dense root shadows and increased linear striation in second radiogram. Annular shadow in first represented the only evidence of incipient disease, which developed extensively, giving signs and symptoms later. *No* X-ray evidence at any time of focus producing spontaneous pneumothorax.

almost invariably containing tubercle bacilli. This conclusion is extremely optimistic in our experience at Guy's, and, moreover, the method is not entirely without danger.

THE DIAGNOSIS

Tuberculosis in adolescents and adults is essentially a disease of diminished resistance. A careful history of the past life and conditions under which the patient lived is of the utmost importance. His childhood, personal history, habits, environment and social status; his occupation, the conditions under which he works and lives, his wages, and journeys to and from his employment; his hobbies and recreations. "It is the play, rather than the work, that often kills."

The importance of this has been stressed, for it is illustrated in every case of tuberculosis. Case I is that of a hard-working housewife with two young children, keeping together a working-class home. Details of difficult labours and abortions often indicate a source of ill-health and liability to infection. The second case is that of a young man travelling to a stuffy office daily from the suburbs and taking his recreations seriously, while young H. M. was born and bred in Bermondsey and worked hard in a laboratory.

I have noticed that the majority of tuberculous adults have no family taint. Hereditary susceptibility does not seem to exist, but evidences of exposure to infection are important, since many of the earliest cases are discovered among contacts.

In the record of the previous illnesses a history of protracted convalescence from some acute disorder is significant. A history of pulmonary diseases, as in Case III, is frequent, while chest injuries sometimes seem to herald the disease. Conditions labelled by the patient "bronchitis," "influenza," "anæmia" and "nervous breakdowns" only too frequently mean undiagnosed pulmonary tuberculosis in the past. It is significant that both Cases I and II give a history of "influenza" at times when there were no epidemics.

Usually one finds that the diagnosis has almost always been made on the history and symptoms, the importance of which cannot be too much emphasised. The clinical examination and all subsequent investigations have seldom afforded more than confirmatory evidence, either for or against a diagnosis already made. The difficulty arises, however, in routine examinations conducted from the point of view of health, when the subject cannot give any information indicating active disease when it is present. Routine X-ray examinations are expensive, and possess other obvious limitations. Considering the cases of the nurses at Marylebone Hospital, it seems that the complement fixation test, although not infallible, gives extremely promising results in this respect. From all accounts, Verne's resorcin test gives even better results, and both will probably take an important place in routine and insurance examinations. At the present time, however, the value of both tests is limited by the fact that only experts in technique obtain the desired results.

One of the most striking features illustrated by these cases is the fact that a negative diagnosis is never justified by any negative findings, even repeatedly confirmed. In Case III the sputum was never positive at any time during nearly two years of undoubted disease.

One must not expect all, or even nearly all, of the possible symptoms in any individual case—a combination of several suspicious symptoms is often enough for a diagnosis, as in Case I. Careful consideration of all the data of the case, neglecting none, will always throw light on doubtful cases, and sometimes prevent serious and often tragic errors in diagnosis. A case without cough or expectoration is practically never tuberculous. A frank hæmoptysis is diagnostic, even in the face of negative physical findings, as in Case II, but blood-stained sputum should never condemn a patient to the rigorous routine of strict sanatorium treatment without very good confirmatory evidence. Bronchitics and bronchiectatics very often complain of blood-stained sputum, and sometimes even of pure hæmoptysis. Epistaxis, hæmatemesis and bleeding from the gums are easily differentiated. Loss of weight is common, but may sometimes pass unnoticed.

An otherwise unexplained pleurisy, following a chill, or a pleural effusion must be regarded as tuberculous in origin and treated as such. One seldom detects any other signs of tuberculosis at the time, but in half these cases the disease appears sooner or later. Hæmoptysis, pleurisy and spontaneous pneumothorax must be regarded as effects, and not causes, of active pulmonary disease, as in Case III. I have recently seen, however, a spontaneous pneumothorax in a girl of 14 suffering from asthma. There was no evidence of tuberculosis, and the pneumothorax was regarded as due to the bursting of an emphysematous bulla.

In the few cases in which a definite diagnosis of tuberculosis is not made, and when repeated radiological and sputa examinations are negative, at Guy's Hospital great reliance is placed on the observation of the temperature and pulse charts at rest, and the exercise tolerance test.

CONCLUSIONS

1. In hospital and private practice the diagnosis is made, in the great majority of cases, on the history and symptoms of the case.

2. Hæmoptysis of unknown origin, idiopathic pleural effusion or pneumothorax indicate active pulmonary tuberculosis.

3. Negative clinical and X-ray examinations, and repeatedly negative sputa, do not contra-indicate active disease.

4. Physical signs are frequently absent, but when present may be misleading, except when constant at an apex.

5. In diagnosis, all the facts of the case must be reviewed and none can safely be neglected.

6. X-rays are the most important modern method of confirming a diagnosis.

7. Temperature, pulse charts and exercise tolerance tests are diagnostic.

8. Of the laboratory aids to diagnosis, the complement fixation and Verne's resorcin tests only are particularly valuable in routine and insurance examinations.

I have to acknowledge my gratitude to Drs. G. Marshall, M. Davidson, S. Melville and W. E. Lloyd for allowing me to make use of Cases and plates.

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The Physical Society

MR. G. H. TAYLOR showed a case of chronic enlargement of the lymph glands, and provided a microscopical section of one of the glands and sections of typical Hodgkin and tuberculous glands for comparison. The patient was a lady aged 38, and she had had these enlarged glands since childhood; she was married, with four children, but had recently had two miscarriages. Mr. Erskine pointed out that, while the microscopical section contraindicated Hodgkin, the clinical picture was not that of tuberculosis, the glands being discreet and hard, and showing no tendency to suppurate. Mr. Southfield called attention to a number of cases of tuberculosis which had originally been diagnosed as Hodgkin on clinical grounds, and thought that such a condition obtained here. Mr. R. E. Smith suggested syphilis, citing the history of miscarriage, and the specific diathesis in support of his contention. Mr. Taylor, in reply, considered that syphilis was unlikely in view of the four normal pregnancies. He quoted some experiments which had been done to show that the lipoid envelope of the tubercle bacillus was, on injection, capable of producing a typical giant cell reaction, whereas injection of toxin derived from the bacillus produced lesions very like the ones shown in this case without giant cell formation. He suggested that there was a primary tuberculous focus in some gland from which the diffused toxin produced the type of lesion which was seen in these glands.

Mr. H. ROSENBERG showed two cases diagnosed as pituitary disorders. The first was a little girl aged five, who had polyuria and polydypsia. He suggested, in the absence of any other symptoms and without occular changes, that the case was really one of functional origin. When Mr. Smith heard that the daily output of urine was only 19 oz. he argued with Mr. Rosenberg that no immediate action was necessary with regard to the pituitary. Mr. Southfield said that B.C.C. had been cultivated from the urine, and suggested a pyelitis.

The second case was a girl aged eight, who suffered from adiposity in which the influence of the pituitary was more in evidence.

Mr. SCHOFIELD showed a case of a boy aged eight, who had suffered from bleeding from the nose and mouth for four years. The first alarming epistaxis occurred at the age of five after a blow on the nose; there had never been any blood in the urine or stools, but there was one doubtful hæmatemesis. There was a strong family history; a sister had had similar symptoms and died from epistaxis; a brother had suffered from these symptoms complicated by malaria, and had died after splenectomy. Two other children were normal, and the patient was the youngest. He had had measles and the doctor had noticed that the rash was of a peculiar dark purple colour, and he was easily bruised. The spleen was not palpable and the platelet count was 86,000 per c.mm. Mr. Schofield suggested that this was a case of congenital thrombocytopenia, and asked for suggestions as to treatment.

Mr. Taylor said that the brother had died from a B. Welchii infection after the splenectomy and not from the blood condition, and suggested that this operation should be performed here. Mr. Coneybeare referred to Frank's work on the aplastic condition of the bone marrow in these cases and suggested that at all costs a specimen of bone marrow should be obtained from this case in the interests of science. Mr. Smith did not share Mr. Coneybeare's enthusiasm for the bone marrow, and suggested that, in view of the unfortunate accident to the patient's brother, this was the last case in which such an investigation should be attempted. Mr. Northfield proposed ligaturing the splenic vein. Mr. Smith pointed out the dangers of waiting before operating for an optimum platelet count. He suggested that the condition might be one of multiple angiomata, for which there was a definite family predisposition, but agreed that this could not be the case when he heard that the brother's platelet count was only 40,000 per c.mm.

Mr. Schofield was against any operative treatment and thought that the patient might grow out of it. He pointed out that there were really two types of the condition—one an aplastic type in which the bone marrow was at fault, and in which protein shock gave no rise in the platelet count, and the other a destructive type in which the spleen or some other organ was at fault, and in which protein shock led to a marked increase in the platelets.

Mr. L. R. C. EDWARD showed a case of a girl aged 18, who suffered from thirst and polyuria and had been putting on a lot of weight recently. She always felt cold even in hot weather, and suffered continuously from frontal headache. She had two pigmented moles, one on the front and one on the back of her chest, and he suggested that the condition might be a melanotic carcinoma with secondary deposits in the pituitary, particularly as these moles had begun to enlarge.

Mr. Plummer found it difficult to correlate the acromegaly with the polyuria, but Mr. K. Gilchrist denied the acromegaly, and suggested a hyposecretion of the whole gland causing Frohlich's syndrome, amenorrhœa and polyuria. Mr. Coneybeare suggested a tumour of the infundibulum preventing egress of the posterior lobe extract, but admitted that this would not account for any anterior lobe deficiency, as this was poured directly into the blood stream. Mr. Gilchrist suggested that the case was really one of syphilis, as he had detected opacities in both lenses, and Mr. Plummer suggested a gumma of the pituitary. Mr. Bradbeer thought that the whole condition was a hysterical manifestation.

Mr. L. H. EVELYN showed a case of polycythæmia rubra in a woman of 53. She suffered from giddiness, shortness of breath and abdominal discomfort after meals. She had suffered from two attacks of shingles and had had repeated attacks of epistaxis. Lately the shortness of breath had become more severe, and she had been having severe headaches. The spleen was readily palpable, the red blood corpuscles were 7,000,000 per c.mm. Hæmoglobin, 129 per cent., and leucocytes, 10,000 per c.mm.

Mr. K. Gilchrist pointed out that the spleen was unusually large for this condition. Mr. Coneybeare said that polycythæmia was in general a reaction to oxygen deficiency or the result of fluid loss, but that here there was no evidence of emphysema, heart disease, diarrhœa or arteriosclerosis. He therefore attributed this disease to a neoplastic condition of the bone marrow.

Mr. R. V. PAYNE presented a case of myelogenous leukæmia in a man of 38, who complained of discomfort after meals. The blood picture showed almost every conceivable form of white cell, totalling 195,000 per c.m.m., with 51 per cent. polymorph and 32 per cent. myelocytes.; 85 per cent. of the white cells were actively phagocytic, and he suggested on this account that this was an ideal case for deep X-ray therapy.

Mr. Atkins quoted a similar case in which, after a violent epistaxis, the patient had been left completely deaf in both ears, and suggested that this might have been due to hæmorrhage elsewhere at the same time. He was, however, unable to account for the absence of vestibular symptoms if this were a true Ménière's syndrome. Mr. Smith suggested that this might be due to an ischæmic atrophy of the auditory nerves analogous to the blindness from optic atrophy after hæmorrhage.

Mr. K. Gilchrist suggested leukæmic deposits in the vessels of the auditory nerves, and Mr. Coneybeare thought that the absence of vestibular disturbance was referrable to a very large lesion which completely destroyed the vestibular apparatus. He considered that myelogenous leukæmia was closely allied to polycythæmia rubra, and quoted cases in which the one had developed into the other. He attributed both to a bone-marrow hyperplasia—the one in the direction of producing an excess of white cells, the other in producing red blood corpuscles. Mr. Smith doubted this relationship in view of the extremely rapid course of myelogenous leukæmia and of the indolent nature of polycythæmia. Mr. Plummer said that he, too, had come across cases where one had passed into the other.

Correspondence

John Lane

To the Editor of the GAZETTE

SIR,—I shall be grateful if you will allow me to appeal to Cambridge men on behalf of John Lane, senior attendant in the Cambridge Anatomy School. "John" has just completed 50 years' service, and must have come in contact with the majority of living Cambridge medical graduates. It is proposed to mark the occasion by presenting "John" with a permanent testimonial at some date in the May term. Subscriptions at the rate of 2*s.* for those not yet qualified and of 5*s.* for medical graduates will be received by Mr. Windsor Lewis or myself. The subscription list will be closed on May 11th.

Yours, etc.,

E. C. HUGHES.

17, Wimpole Street,
W.1.

Dr. Poulton's Combined Round

To the Editor of the GAZETTE

SIR,—I should like to make it known that the Combined Round that I usually make with Dr. Campbell, Dr. Warner, and other members of the Staff, in Steph... and Mary Ward at 2 p.m. on the first Thursday in every month, will be postponed to the second Thursday in April. Apart from occasional postponements, when the first Thursday falls on or near a holiday, this Round takes place every month in the year except September.

Yours, etc.,

E. P. POULTON.

25, Upper Wimpole Street,
W.1.

House Appointments in America

To the Editor of the GAZETTE

SIR,—I am sorry Mr. R. E. Smith did not think I did full justice to the American system of house appointments. If I did not state in so many words that I thought the time spent doing interneships was the most valuable period of hospital training it was because I took it for granted that everyone would naturally understand so without being told. I have the greatest respect for the training given during interneships at the big teaching hospitals, although I am by no means convinced of the advantages of the method of spending six to seven weeks in each of six or seven departments.

However, my intention was to compare the average medical education obtained in the States with that obtained at home. The secret of most of the differences in the student period is explained by the fact, which I mentioned quite clearly, that the curriculum is not meant to be complete without at least one year spent doing interneships. In other words, it is well recognised that at the time of graduation the training is insufficient and impractical.

Mr. Smith gives the impression that all the States require a year to be spent in doing interneships before granting a licence to practise. This is by no means so; I have been unable to find the exact number, but a very reliable authority has informed me that it is the exception rather than the rule. Certainly the State I am now in (Missouri) does not require it. In other words, there is no general certainty that the admittedly insufficient period of undergraduate work will be improved upon.

Again, Mr. Smith is confusing what happens to the picked few at the best medical schools and what happens to the main mass of students. To take

a concrete example: 75 students graduate from this school every year; there are 14 interneships, and usually ten or so of these go to students trained here. Some 65, therefore, in order to complete their admittedly unfinished clinical training, must find jobs elsewhere. There is no need to emphasise how many of these will fail to get a useful appointment at a teaching hospital of any standing; many of them will get no further real training.

While, therefore, the complete system of education for the chosen few who go through the whole course is excellent, I do not consider the average man is so well fitted for practice as the average man who qualifies after our longer clinical course at home. If it were possible to shorten the clinical course and ensure that in all cases a satisfactory house appointment was carried out, then I am in full agreement with Mr. Smith that such a system is a better method than increasing the minimum of study from five to six years, as has been done in England.

Yours, etc.,

R. C. BROCK.

Barnes Hospital,
St. Louis, Miss.,
U.S.A.

Reviews

Scalpel, Sword and Stretcher. By Colonel ROBERT J. BLACKMAN, C.B., C.M.G., C.I.E., D.S.O., M.D., Knight of Grace of the Order of St. John, formerly Hon. Surgeon to the Viceroy of India, and D.D.M.S. Ninth Army Corps in France. Published by Messrs. Sampson Low, Marson & Co., Ltd., 100, Southwark Street, S.E. *Price* 12*s.* 6*d.* net.

ADMITTEDLY, "Scalpel, Sword and Stretcher" is an autobiography. It is an autobiography around which is built an outline of the progress of medical knowledge from the earliest apprenticeship of the writer to the present day. Thus in the early chapters the great contribution to surgery by Lister and his work and the development in recent years of bacteriology and preventive medicine are well illustrated.

The three divisions of the title subdivide the book into three parts. The first part brings home to the reader the method of training by apprenticeship and the importance of a knowledge of pharmacy.

It is interesting to compare the attitude of the student in the Irish Free State with that of the student in England with regard to coaching for examination. Coaching in England is not indulged in by the majority, but only by those who "come down" in their examinations, whereas in the Irish Free State there are very few who would think of sitting for an examination unless they had been to their "grinders" or coaches for a recognised preparatory course, by which means a knowledge of picking out salient facts in reading can be obtained and so little bookwork wasted.

The numerous anecdotes of home life in the Irish Free State, combined with the politics of the State and the history of medical examination boards, makes this first edition particularly interesting.

The second part deals with a survey of life in India before the war, and the picture portrayed is a very delightful one, but the conditions that have enabled a balance between hard work and recreation to be so pleasantly maintained in the past are rapidly changing in India at the present day, and, we are afraid, it will be difficult to reinstate.

In the third or latter part of the book there is a good description of the work done by the R.A.M.C. in France and Italy during the war.

"Scalpel, Sword and Stretcher" is good reading for everyone, and especially for those who are choosing the Army Medical Service as a career. It is not only from the section on India, but also from the section on the war that the importance of preventive medicine to the army medical man can be seen, so it may be realised that a holder of a Public Health diploma in the army is particularly well equipped. But it is owing to the description of the history and activities of the St. John Ambulance Brigade that the value of the book is increased, and to read this will repay those who are thinking of joining the ranks in this field of medicine of which the pioneer work in India has been so ably organised by the writer.

Clinical Examination and Surgical Diagnosis. By FELIX LEJARS. Translated by Helen C. Scott. Published by Messrs. Jonathan Cape.

ALL books suffer in translation. Some are improved, many are made completely unreadable, and this book is no exception. The translator has attempted to preserve in English the terse and somewhat melodramatic style of the original French version; she has succeeded in doing so, but whether this is or is not an advantage may be left to less discreet pens than ours.

This second edition must infallibly add to Professor Lejars's reputation, already enormous in this country. It is interesting, the text is never

dull, it is full and its pages are illustrated by numerous photographs and diagrams, nearly all of which are original, a welcome change in these days of plagiarism. It is a pity that some of the photographs are so dark and nebulous that no distinct details can be seen, but such carping criticism is merely proof of the general excellence of picture and print alike.

Anatomy in the Living Model. By Prof. DAVID WATERSTON. Published by Messrs. Hodder & Stoughton. *Price 25s. net.*

IN its 250 pages and 74 plates this book comprises a concise and interesting manual of surface anatomy. The general composition of the book is excellent, the author dealing in turn with the various regions of the body and describing in detail the various prominent bony and muscular landmarks of each. By means of diagrams, projecting the deeper structures on to the surface, he impresses upon the reader forcibly the essential anatomy of the limb and gives him a general idea of the structure of the limb as a whole. This is a suggestion that most anatomical text-books fail to make, owing, no doubt, to their dealing with each limb in compartments, so that one is usually left vaguely wondering what happens to the femoral artery after it leaves the adducter canal and before it enters the popliteal space.

The paper, binding and print are excellent; the diagrams, many of which are coloured, are very clear, and the book is warmly recommended to those who regard anatomy as something more than a mere subject in the second M.B. It should be very valuable for those who require that additional polish in anatomy before they sit for the Primary Fellowship—not that it contains a mass of detail, but on account of the admirable way in which it sums up one's scattered and disjointed knowledge.

Sport

Rugby

Guy's v. Gloucester

ON Saturday, February 28th, Guy's visited Kingsholme and achieved a remarkably fine performance when they defeated the home side by a dropped goal and a try (7 points) to a placed goal (5 points).

The success of the Hospital was all the more meritorious as they were compelled to take the field without four of the side which represented them against St. Bart.'s—prominent absentees being Hogbin, Popplewell, Lashmore and I. K. Thomas. On the other hand, Gloucester lacked the services of M. A. McCaulis, but were compensated by the first appearance of C. C. Tanner, the International and Cambridge Blue.

It was a bitterly cold day and, coupled with the fact that there was a strong wind blowing down the field throughout the game, handling with any degree of accuracy was very difficult.

In the opening half, Guy's had the assistance of the breeze, but Gloucester started with such dash that it looked as though the Hospital would be overwhelmed. After a few minutes' play the home side were awarded a penalty, and Boughton found touch well inside the 25. Walter Lewis relieved with a fine kick to touch, but a moment later a brilliant effort by Tanner nearly led to a score, and it was only a first-class tackle that prevented Abbey from getting through. However, Gloucester's efforts were rewarded a minute or so later when a strong burst by Steele-Perkins carried him over the line to touch down for a try, which Boughton converted with a splendid kick.

At this stage the City forwards were heeling well and their backs were given several opportunities, but Guy's improved considerably, and eventually took up the offensive, which was maintained until the interval. A movement started by Windsor Lewis gave Ashdown a chance, but he was beautifully tackled by Boughton, who was very safe at full-back.

Play was now confined to the home half, and with the Hospital kicking well to touch, Gloucester's defence was sorely tried. Twice the ball was sent over the line, but Meadows and James avoided touching down and cleared their lines.

Following considerable pressure by the Hospital, Tanner tried to clear a pass by Meadows, but failed. In the loose play that followed, Windsor Lewis picked up and, following an excellent run, he gave a timely pass to Batchelor, who scored an unconverted try in the corner.

Gloucester then made a brief attack, but were sent back as the result of some good passing between the Hospital backs. After they had worked down on the left wing, the ball came out to Windsor Lewis, who without a moment's hesitation dropped a magnificent goal from near the touch-line.

In spite of repeated efforts to get through, Guy's could not add to their score, and the interval arrived with the Hospital leading by two points. Considering that they would have to face a strong breeze in the second half, it did not seem possible

for Guy's to retain such a slender lead, but the whole side rose to the occasion, and by first-class tackling and close marking frustrated many movements which appeared likely to bear fruit.

Gloucester recommenced most convincingly when Tanner, Meadows and Davies all got in some excellent runs—in fact, Meadows was always a thorn in the Guy's side, and required a lot of watching. Boughton tried a drop at goal, and after Guy's had touched down, play was transferred to mid-field, where Ashdown, after beating two opponents, was tackled and Meadows cut through. From a punt ahead Comley gathered nicely and kicked past W. Lewis, but luckily Giesen came across in time and found touch.

At this point, the Hospital line was severely tested, but their defence was superb—a passing movement which started in their 25 brought temporary relief when Johnson got away on the left wing and punted, but Gloucester got back and saved. The City retaliated with a dashing raid to the Hospital 25, but the wind played many tricks with passing movements and several opportunities went astray. A touch-finder by Boughton carried play to within a yard of the line, and although Gloucester made desperate efforts to cross, Guy's hung on like tigers and managed to prevent any further scoring.

Giesen, Windsor Lewis and Clegg were excellent —the former marked Tanner with telling effect, and seldom allowed him to get through, whilst both wings got through a lot of hard work. The forwards did splendidly to hold such a formidable pack, and in the first half were clearly on top after the opening few minutes.

Team.—W. Lewis; D. E. Ashdown, W. B. Clegg, J. E. Giesen, A. G. Johnson; Windsor H. Lewis, J. Howell; J. S. Batchelor, J. P. O'Shea, J. Kunovsky, I. G. Robin, L. B. Hilton, T. Morgan, A. R. Clarke, P. K. Robinson.

Guy's v. Bristol

VISITING Bristol on Saturday, March 7th, Guy's, after obtaining a lead at the interval, were eventually defeated by a placed goal and 5 tries (20 points) to a placed goal (5 points).

In spite of the fact that they lacked the services of J. S. Tucker and G. B. Carter, Bristol fielded a very strong side, which included the Internationals T. W. Brown, D. W. Burland and T. J. M. Barrington. For Guy's, S. C. Shore took the place of Howell at scrum half and R. A. P. Hogbin returned to the side, which, but for these exceptions, was the same as that which succeeded at Gloucester.

Once again the weather was bitterly cold and the ground so hard that there was some doubt in the morning as to whether the match would be played. However, it was decided to carry on, and an excellent game was witnessed by a large attendance.

Guy's started with the assistance of the wind, and in the early stages play was of a very even character, with the Hospital forwards giving the Bristol eight a hard time.

Bristol quickly settled down and set up several sharp attacks in which Barrington and Lillicrap were prominent. Burland had a shot at goal from a penalty, but missed his objective against the wind. For a few minutes Guy's were penned in their own 25 and Bristol missed a great chance when Hicks missed a penalty awarded in front of the posts.

The players were finding the cold very unpleasant and a severe handicap in handling. Brown, by excellent kicking, kept his side on the attack, but eventually Clegg burst through and the ball was sent to Ashdown, who was promptly tackled by Sherman. Eventually Bristol drew first blood, when Burland accepted a pass from Moncrieffe and cut through the centre. After beating the full-back he crossed the line and touched down near the posts, but Hazell failed to convert.

Guy's improved after this and, assisted by a penalty, set up several attacks, but Bristol proved equal to all demands, until Burland slipped and passed back to Brown, who was compelled to find touch a yard from his line. Shore got the ball back smartly to Windsor Lewis, who sent on Giesen before he was tackled. However, Clegg was at hand and cut through smartly, and, although he might have scored himself, he made sure by giving to Ashdown, who crossed for O'Shea to kick a fine goal from a difficult angle.

Through judicious kicking to touch Guy's kept up the pressure, and play became very exciting as the Hospital swarmed on Bristol's line, which had several narrow escapes. Guy's were now playing really good football, but the slippery state of the hard ground made it difficult to keep their footing. Bristol had a penalty awarded against them, but, although it was in a good position, the kick failed.

Following the interval and aided by the wind, Bristol set up a series of steady attacks, which were checked for a moment by Windsor Lewis, who cut through from a scrum in the Hospital's 25.

The Hospital showed much cleverness in turning defence into attack—Giesen, Hogbin and W. H. Lewis being expecially prominent, while Johnson and Ashdown on the wings were very fast. On one of these occasions Johnson got away and cross-kicked, but Brown cleared cleverly.

Bristol went ahead as the result of a try by F. Tucker following a movement by E. Tucker, Burland, Smith and Lambert; the kick was disallowed. After this reverse Guy's attacked strongly, and Clegg, as the result of a pass by W. H. Lewis, went straight through and only a strong tackle stopped his progress.

Back came Bristol, and their score had five points added to it as the result of a try by Sherman, which Burland converted. This was unfortunate for Guy's, as they were playing smart football and opened up quickly, Walter Lewis at full-back being just as good as Brown.

Burland made a typical run, and after interpassing with Sherman and handing off two players, he went over for another unconverted try.

Guy's were finding the wind a serious handicap, but they defended strongly against every attack, while Bristol were playing for all they were worth to add to their lead. Burland quickly added another fine try as the result of a great individual effort when he shook off several opponents before touching down, which he failed to convert in front of the posts.

In the closing stages, Barrington picked up in the loose and, after giving the dummy twice, crossed for the home side's final score.

Team.—W. Lewis; D. E. Ashdown, W. B. Clegg, J. E. Giesen, A. G. Johnson; W. H. Lewis (Capt.), S. C. Shore; J. S. Batchelor, J. P. O'Shea, J. Kunovsky, P. K. Robinson, L. B. Hilton, R. A. P. Hogbin, T. Morgan, A. R. Clarke.

Fencing

Guy's v. Lensbury

A MATCH in foil, epée and sabre against Lensbury Fencing Club was held at their headquarters on March 4th, and resulted in a loss for the Hospital of 17 defeats to 10.

The foil event was lost by 8 defeats to 1, the solitary victory being gained by Paterson, who did not quite reach his usual standard in this weapon. Forbes fought with confidence, and was defeated by a small margin only in each fight, but he still performs a movement all his own, half parry and half stop-hits, which is not to be recommended. Holman battled doggedly and with some measure of success, but was too apt to attack with his arm bent.

The epée event was a less disastrous affair, being lost by the odd fight alone. Paterson showed to much greater advantage and obtained two victories, while Irish, aided by ten nimble toes and a large slice of good fortune, did likewise. Hodgkin fought with considerable patience and deserved a better fate than three defeats.

The sabre pool was won by the Hospital by 4 defeats to 5, after a series of excellent bouts. Paterson was undefeated in this event, and fought exceptionally well throughout. Irish also fought well, using the point with marked success and gaining two wins. Wright was rather wild, especially in his parries, and did not attack sufficiently. Although he suffered three defeats, he took all his fights to the last hit.

The scores were: Foil—Paterson, 2 defeats; Forbes, 3 defeats; Holman, 3 defeats. Epée—Paterson, 1 defeat; Irish, 1 defeat; Hodgkin, 3 defeats; Sabre—Paterson, 0 defeats; Irish, 1 defeat; Wright, 3 defeats.

University of London Fencing Championships, 1931

THE University Tournament this year was distinguished by the excellent performance of D. M. Paterson, of Guy's Hospital Fencing Club, who secured first place in the foil and sabre events and second place in the epée event, thus winning the Fildes Cup presented this year for the first time, for the largest number of points gained.

There was a large entry from Guy's for the Tournament, and of these Paterson, Wright and Forbes in foil, Paterson in epée, and Paterson and Irish in sabre survived to the Final, which was held at University College on March 7th. In the foil event Paterson fought remarkably well and gained first place, while Forbes, who seemed below his usual standard, suffered defeats in all his bouts. Wright was unfortunately compelled to scratch from the Final. In epée, Paterson again fought brilliantly, but was beaten by Collins, of University College Hospital, who secured first place. In sabre, both first and second places were obtained for Guy's by Paterson and Irish respectively, who tied for first position, Paterson beating Irish in the resulting barrage.

Guy's v. Middlesex

ON March 11th, the Guy's team visited Middlesex Hospital for a match in foil, epée and sabre, which was won by Guy's by 8 defeats to 19.

The foil event was won by 4 defeats to 5, Monkhouse and Pitts fighting very well to win two contests each. Wright was a little wild in defence, but scored several neat hits in attack.

In epée our opponents were completely routed. Monkhouse and Pitts both winning all their fights and Hodgkin two. The epée work was remarkably good, and there is little that can be said in criticism of the Guy's team.

The sabre event was won by 3 defeats to 6, and here Irish appeared to advantage, winning all his fights and scoring several good ripostes. Monkhouse won two of his bouts and was good in defence, though in attack he tended to lay himself open to stop-hits. Wright showed himself better in attack than defence, and won one of his contests. The scores were: Foil—Monkhouse, 1 defeat; Pitts, 1 defeat; Wright, 2 defeats. Epée—Monkhouse, 0 defeat; Pitts, 0 defeat; Hodgkin, 1 defeat. Sabre—Irish, 0 defeat; Monkhouse, 1 defeat; Wright, 2 defeats.

Hospital Information, etc.

Pass List

L.D.S., R.C.S. ENG.

FIRST PROFESSIONAL EXAMINATION.

February, 1931.

PART I.

Dental Mechanics.

G. D. Lloyd
L. G. Lyle
L. E. Marshall
J. W. Rose
W. G. Scoble
M. H. J. Simpson
L. B. Somerville Woodiwis
H. V. Sydenham
C. V. F. Thomas

PART II.

Dental Metallurgy.

J. M. Alexander
H. R. P. Annett
G. H. Austin Smith
R. O. Barber
H. A. M. Ching
F. I. S. Copley
H. Cowen
R. J. Cowling
W. V. A. Denney
W. G. C. Dimock
J. Entwistle
R. E. C. Farrant
E. J. Freeman
N. E. Gillham
A. R. Gillies
A. Gorton
H. Hack
C. I. Hagger
J. W. Hallam
L. B. Holmes
R. G. V. Houlson
G. M. Johnson
W. A. Jones
H. Kauter
K. E. Lawrence
L. Merrill
W. E. Morton
E. H. Musgrove
P. K. Perren
J. H. Pitman
A. Pryor
G. J. Rubie
M. H. J. Simpson
P. G. Sparg
H. Stewart
J. A. G. Starnes
J. H. Thompson
E. S. Venning
S. R. Wallis

PART IIIa.

Anatomy and Physiology.

L. J. Bailey
J. Bunyan
H. Burch
J. C. Carr
R. Chartier
E. O. Clough
W. F. Collyer
H. G. Earnshaw
R. E. C. Farrant
G. D. Fleetwood
C. H. James
E. C. Jenet
D. Lennie
D. Malt
R. S. Martin
K. Morris
H. P. Rees
R. A. Williams

PART IIIb.

Dental Anatomy and Physiology.

V. P. Betts
F. J. Bloor
J. Bromley
R. W. D. Brownlie
R. S. Bruce
J. Bunyan
H. B. Christian
J. T. Cramp
J. T. P. Cullingford
L. D. Dale
J. H. de Mierre
G. G. Ellis
H. G. Earnshaw
D. A. Fairfax
T. Ireland
E. H. Lewis
D. C. D. Mathews
H. Milligan
D. K. Ness
C. G. O. Nevard
C. G. Palmer
J. F. Paterson
M. W. Pilcher
P. K. Robinson
W. F. Rose
R. W. Ross
B. W. Sage
C. W. F. Shuttleworth
J. C. Fry
A. C. Fuller
R. T. Garner
C. B. de V. Green
G. G. Hardie
C. J. Hartley
H. N. V. Hawthorn
E. R. Heathcote
T. Helmer
P. A. Sloane
H. A. Stanger
C. R. Stone
H. R. Stubbs
R. B. Sumerling
H. V. Sydenham
I. E. W. Whitling
S. M. Whitteridge
I. D. Williams

FINAL EXAMINATION.

PART I.

Surgery.

J. T. Holford
L. R. Millership
L. Mortimer
R. H. G. Neave
J. W. Small
S. Williams
G. R. Wootton

PART II.

Dental Surgery.

E. B. Carpenter
T. A. Chandler
W. Hughes
J. W. Mansie
W. K. Scantlebury
K. E. Williamson

CONJOINT BOARD.

January, 1931.

Midwifery.

E. W. M. Williams.

M.R.C.P.

January, 1931.

A. B. Kettle
S. Suzman

Papers by Guy's Men

T. I. Bennett, E. C. Dodds and J. D. Robertson. Conception of nephrosis. *Quar. J. Med.*, 1931, xxiv, 239.

A. H. G. Burton and A. R. Balmain. Hospital administration of scarlet fever. *Med. Off.*, 1931, xlv, 61.

A. F. Hurst. Recent advances in treatment of gastric disorders. *Clin. J.*, 1931, lx, 97, 109.

A. F. Hurst and J. A. Knott. Intestinal carbohydrate dyspepsia. *Quar. J. Med.*, 1931, xxiv, 171.

N. Mutch. Medicinal treatment of chronic arthritis. *B.M.J.*, 1931, i, 383.

A. A. Osman. Importance of sugar in diet of school-child. *Dent. Record*, 1931, li, 112.

Births

ANNESLEY.—On February 18th, 1931, at Darlington, to Joan, the wife of Major F. D. Annesley, R.A.M.C. —a daughter.

STEVENS.—On February 21st, 1931, at Mussoorie, to Dr. Kathleen Stevens, wife of Dr. Ernest N. Stevens —a daughter.

Deaths

HENRY.—On Friday, 13th March, 1931, Percy Franklin Henry, L.D.S., R.C.S. (Eng.), aged 58.

REEVES.—On February 10th, 1931, Albert Reeves, physician and surgeon, at Florence.

EDS. { P. M. F. B. / P. V. R.

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GUY'S HOSPITAL GAZETTE

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PASSIM

THE noise, the rush and the bustle attendant upon the preparation for an almost universal exodus from the College for the long Easter week-end we find highly distracting, penetrating, as they do, with tactless officiousness into the privacy of our room as we sit down to wish our readers conventional Easter greetings. We say "conventional" advisedly, for the jealousy engendered by our unavoidable inability to take part in the coming departure is responsible for flavouring our greetings with jaundiced bitterness.

In such circumstances it is not surprising, therefore, that we should review the evolution of our attitude towards holidays. There was a time, not many years ago, when we used to *enjoy* six months' holiday in the year, whereas now we can easily develop a healthy state of boredom after three weeks' inactivity. This, we suppose, is evidence of a merciful psychological adaptation to existing circumstances. Such an adaptation, however, cannot be made without some sacrifices, of which, perhaps, the greatest is the danger of sinking deeper and deeper into the rut, from which all the chains and levers of retirement from active life at the age of 60 or 70 usually fail to extricate the now hopelessly one-sided practitioner.

How short-sighted it is, therefore, not to make full use of the holidays we get. What false economy not to go abroad whenever we possibly can; how regrettably lazy not to develop our spare-time hobbies, but to loaf discontentedly over some cheerless fire talking "shop" to some equally dull fellows.

In recent years, doctors have enjoyed a richly undeserved reputation for being interesting people to meet socially, who are conversationally well-informed on a variety of subjects, whereas actually the majority of medical men, especially those who hang about large hospitals, have hardly any interests at all outside their work.

RECENTLY we have been struck by the energetic attempts which are being made everywhere to provide post-graduate teaching.

There are four kinds of post-graduate: the usually recently qualified man who is up for one of the higher examinations; he can be catered for, obviously, only by means of a special course, such as the Final Fellowship and the Membership courses which are so justly popular at Guy's. Then there is the general practitioner of some years' standing who wants to bring his knowledge up-to-date; for him special facilities are usually provided for accomplishing his end, such, at this hospital, as Dr. Hurst's and Dr. Poulton's Combined Rounds, or special lectures under the auspices, say, of the Royal Society of Medicine, or the clinics of Continental or American universities. The third type of post-graduate is the general practitioner who wishes to specialise in some branch of medicine or surgery; his course again is clear, namely, to obtain a Resident post or a Clinical Assistantship which will enable him to share actively in the treatment of patients. But what of the fourth type of post-graduate, the man who has recently retired from the Army or Navy, or who wishes to take a well-earned rest from general practice for a few months? If he is an old Guy's man, he is very welcome to return

and study, perhaps, the methods of his quondam contemporaries, now on the Staff. Our only regret is that we cannot offer him sufficiently valuable or instructive material to make it worth his while. So entirely divorced from the principles of post-graduate instruction are the methods of a hospital which concentrates on the practical treatment of patients and the teaching of unqualified students that the well-established practitioner can derive but little benefit from mingling in the ordinary daily routine. Should he be loyal enough to his old hospital to flatter us by attending Out-patients or a Registrar's Round, he must inevitably be bored with the eternal reiteration of the points in the clinical diagnosis of inguinal hernia, the stereotyped classification of the causes of amenorrhœa, or the perpetual repercussions of the pleural effusion.

With very few exceptions, this type of post-graduate is a sensitive man, and we often feel that our inadequate repayment of his patronage may be misconstrued by him as a lukewarm demonstration of hospitality. Should he weary of our elementary efforts, may we remind him of the benefits to be obtained from a visit to such pre-eminently post-graduate hospitals as the Brompton and Queen's Square, and may we associate ourselves with those who are pointing out the urgent necessity of some large central post-graduate hospital where the casual post-graduate may have an opportunity of studying the less common and more interesting type of case which is so rarely seen in a general teaching hospital?

THE following have been recommended for the appointment of Clinical Assistant for the period April 16—July 15, 1931 :—

Mr. J. S. Batchelor.	Mr. G. A. M. Lintott.
Mr. D. Erskine.	Mr. R. N. C. Smith.
Mr. G. F. Lashmore.	Mr. K. S. Southam.

On Examining the Rectum

A Clinical Lecture delivered at Guy's Hospital, March, 1931, by J. A. Ryle, Esq., M.D.

GENTLEMEN,—The end of the alimentary passage hides many secrets. These secrets are in more senses than one fundamental, for right diagnosis and appropriate treatment depend upon their timely discovery. There is a saying that the chief clinical advantage which the consultant has over the general practitioner is to be found in his more frequent appreciation of the necessity for a rectal examination. This might seem to suggest errors of omission on the part of colleagues, but it is clearly not a general criticism, and it might equally be taken as a reflection on teaching. All doctors in all branches of the profession—and consultants are no exception—are guilty of omissions from time to time, for they are only human, but I believe it would be fair to suggest that the best doctors are those who can claim the fewest omissions in respect of this simple procedure.

I have recently looked through my notes of 14 cases of carcinoma of the rectum. These cases do not usually find their way to the physician; they go to the surgeon, and the majority presumably go with the diagnosis already made. Of these 14 cases, however, eight had not been diagnosed, notwithstanding that they had had characteristic symptoms for periods varying from three months to four years. Seven of them had never had the rectum examined. Five had symptoms dating back over a year, and two of them over three years. *The usual diagnosis in unexamined cases has been "colitis."*

What are the reasons why this important procedure is apt to be neglected? If we exclude the general consequences of being rushed and overworked and the occasional case of the inarticulate patient, I think they may be summed up under three headings: (1) ignorance of the indications; (2) laziness; and (3) a very natural sense of delicacy. The first and third of these can be overcome. The second is less easily corrected, and those who are guilty of it in medicine have mistaken their vocation. With regard to the third, there is an instinctive disinclination to carry out an examination which in the idea is so unpleasant and so likely to be repugnant to the patient. Some patients who have to submit to it are, in point of fact, most considerate, and will even express sympathy for the doctor that such a duty should fall to him. Others are squeamish or timid, but if we make a point of being gentle and are careful to explain to them the importance of the examination and how quickly it is over and to warn them that, while it is likely to be uncomfortable, it is only occasionally painful, confidence can soon be won.

I propose to discuss with you the indications for examining the rectum, the technique of the various methods at our disposal, and some of the lessons to be learned. Our decision to make the examination must obviously be based on history and symptoms. It would clearly be an excess of zeal to make it a part of every routine overhaul. The behaviour of the bowel, abnormalities in the consistency and appearance of the stools and local pain or discomfort are, of course, the chief indications. If blood is passed it should be particularly noted whether this is with a formed or unformed stool, whether it comes with the stool or separately at the end of it, and so forth. The diseases which we set out to diagnose with the help of the examination are chiefly situated in the ano-rectal canal or its near neighbourhood, but we should recollect that they may also be remotely removed from it.

THE INDICATIONS FOR A RECTAL EXAMINATION

The principal symptoms and occasions which call for the examination are :—

1. Pain in the anal or rectal canal; bleeding from the rectum; passage of mucus or pus from the rectum; chronic diarrhœa; obstinate constipation; alternating constipation and diarrhœa; anal pruritus : symptoms in other words suggestive of carcinoma, fistula, fissure, piles, proctitis or colitis. Rectal prolapse or symptoms of intussusception in children are further obvious indications.

2. Urinary symptoms suggesting enlargement of the prostate or pressure upon the bladder or symptoms of disease of the genito-urinary apparatus which might involve the seminal vesicles in the male.

3. Symptoms of uterine, ovarian or tubal disease in the female and more particularly in unmarried women when a vaginal examination is to be avoided.

4. Any suspicion of serious abdominal disease, inflammatory or malignant, in which the possibility of feeling an inflammatory mass (as in appendicitis) or deposits of new growth (as in carcinoma of the stomach or bowel) is entertained.

5. Sciatic or hip pain or other symptoms of possible bony disease involving the sacrum or pelvis and including osteomyelitis, tubercular trouble and bony tumours.

6. Rectal spasms and crises of nervous origin where we must, nevertheless, be at pains to exclude a local cause.

7. Severe unexplained anæmia where malignant disease, a local source of venous or arterial bleeding, or a tarry smear on the tip of the finger-stall may give the answer to our question.

8. Obscure pyrexia in cases where it has become necessary to exclude local inflammatory or malignant causes.

This is a sufficiently long list, but not exhaustive.

THE TECHNIQUE OF RECTAL EXAMINATION

The anus and rectum may be examined (*a*) with the forefinger, (*b*) with the anal speculum, (*c*) with the proctoscope or sigmoidoscope, and (*d*) by direct inspection during dilatation of the sphincter under an anæsthetic. The most important of these is the digital method, but more accurate information is often obtained by one of the visual methods. Some teachers, I believe, advise that finger-stalls should not be employed as they diminish tactile accuracy. You should certainly never employ the thicker finger-stalls provided; the finger of an ordinary rubber operating glove is generally too thick. The thin " film " finger-stalls, however, now on the market are, to my mind, satisfactory. They are more hygienic than the naked finger and they do afford protection against what is an occasional, but ever possible, risk of infection. I have never regretted my custom of employing one since I examined a case some years ago of undiagnosed anal soreness in a young man who in the following week developed a profuse and universal syphilitic rash. Condylomata are among the most infective of syphilitic lesions.

THE DIGITAL METHOD

For this examination the patient is placed in the left lateral position; the knees should be well drawn up towards the chest, with the buttocks on a level with or just over the edge of the bed or couch. The anal orifice should first of all be inspected for external piles or for the surrounding sodden skin of pruritus ani, and then anointed with vaseline. Care should be taken to avoid introducing hair with the finger. Then, if the finger is inserted gently and slowly, discomfort will be reduced to a minimum. The examination may be excessively painful in the presence of fistula, fissure, a thrombosed pile, a low rectal carcinoma, or in certain cases of anal spasm. Otherwise it is usually only uncomfortable. It commonly evokes a sense of the desire to defæcate, and is therefore a cause of mental distress, which can easily be explained away.

What are the abnormalities which the finger may encounter? Piles, unless they have recently been thrombosed, are soft structures and seldom very evident. An anal fissure, or more correctly an anal ulcer (the impression of a crack or fissure

is due to the fact that the ulcer is laterally compressed by the postural tone of the sphincter), may, for all its minuteness, give a very definite impression to the finger-tip, and this is best likened to the feeling of the button-hole on the lapel of one's coat. The track of a small perianal fistula or abscess may be felt as a small linear prominence. Direct pressure upon an ulcer or an abscess nearly always evokes instant pain. Ballooning of the rectum gives the impression of a large hollow cavern when the finger has passed beyond the sphincter. By some this is thought to be a sign of obstruction higher up. I do not think that this is necessarily so, but that it is more common in obstructions or other chronic bowel diseases than in the absence of these conditions. A carcinoma may be felt as the elevated edge of a hard ulcer over which the finger-tip rides before it drops into a roughened crater, or as an irregular tumour filling the lumen of the bowel. Scyballa in a neighbouring loop may easily be mistaken for a tumour or glands. Retained fæces may be present in the rectum as a soft mass or scyballous lumps, or, occasionally, as a large, impacted mass capable of causing severe symptoms, as I shall describe.

In certain cases it may be necessary to make a bi-manual examination. It is then wiser to roll the patient on his back, keeping the finger in position in the meanwhile, when gentle pressure on the abdomen may bring a tumour, which could not otherwise be felt, in contact with the finger-tip.

On withdrawing the finger, which should be done slowly and gently, the finger-stall should be inspected for the presence of blood or pus, or to observe the colour of adherent fæcal matter.

INSTRUMENTAL METHODS

Firstly, we have the anal speculum originally devised by Hilton, which is most useful for inspecting and giving access to an anal ulcer. The instrument explains itself; the removal of the slide gives a clear view of the diseased area.

For the proctoscope and sigmoidoscope we employ the same technique, and they may be considered together. With regard to the preparation of the patient, no purgation should be used. If he is up and about he should be encouraged to have the bowel moved an hour before the examination. If confined to bed, a warm-water washout should be given early on the morning of the examination and later attempts at natural evacuation should be encouraged. A nervous patient may be given a morphine injection 20 minutes before the examination, and if there is anal soreness a cocaine suppository may be inserted. Unless the general condition prohibits it, the examination should be made without an anæsthetic, in the knee-elbow position, with the shoulders low and the buttocks raised and the back well hollowed. Before the instrument is passed a digital examination should be made (1) to afford a reminder of the direction taken by the anal canal and the angle which it forms with the rectum, and (2) because it effects a slight preliminary dilatation before the bigger instrument is inserted. As soon as the instrument has been passed within the rectum the plunger should be removed and the light inserted, and all further progress in its passage should thereafter be guided by sight. The normal landmarks are the two Houston's folds, rather reminiscent when viewed simultaneously of the diaphragm of a camera-shutter, and beyond these the pelvi-rectal flexure. As careful an inspection should be made in withdrawing the instrument as in passing it. Only during withdrawal can we observe the state of the anal canal. The colour and smoothness or otherwise of the rectal mucosa, bleeding on contact with the instrument, or blood, mucus or pus coming down from above should all be looked for as well as surface ulcerations or grosser lesions.

Let us now pass to a review of some illustrative cases.

1—CARCINOMA OF THE RECTUM

(*a*) A woman, aged 58, coming from abroad, stated that she had had an operation for removal of her appendix four years previously. The pain for which the operation was performed persisted afterwards. Two years later she had the first of a series of violent attacks of lower abdominal colic. For 18 months she had had continuous abdominal discomfort and pain, and during the past ten months had frequent calls to stool with passage of blood and mucus. She had lost 3 stone in weight during four years, was emaciated and cachectic. She had been treated for "colitis" and the stools had been examined bacteriologically to exclude dysentery. Rectal examination showed the pelvis to be filled with a hard mass and also a hard villous tumour filling the lumen of the bowel. It is probable that the growth had been there for at least two years, and possible that the pain for which the appendicectomy had been performed four years previously was the first manifestation.

(*b*) A woman, aged 61, was sent to me with a diagnosis of mucous colitis. She had been seen by more than one doctor in her own town, had been sent to Leamington for special treatment and was there examined radiologically, and had had Plombière's treatment at Harrogate. The duration of her illness was three years. The symptoms had started abruptly in the first instance with the

passage of blood and mucus and frequent calls to stool. She had gradually become worse, and her complaint was of violent pain in the lower abdomen and a sensation " as though her intestine was trying to pass out by the bowel." Frequency and urgency were so pronounced as to necessitate her taking a bedpan to bed with her. She had lost over a stone in weight and was thin and anæmic. At the limit of the finger a hard ulcer with a well-defined edge and rough base could be felt.

In cases of this kind it is clear that even if rectal examination at an earlier stage had failed to make the diagnosis the symptoms called for a proctoscopic or sigmoidoscopic examination. *Bacteriological and X-ray examinations are clearly quite out of place until the bowel has been examined both digitally and visually.*

2—ANAL ULCER

(*a*) A woman, aged 40, was sent into hospital under my care for recurring hæmorrhage from the bowel and profound anæmia in November, 1927. The first hæmorrhage had been noticed in 1913, and she was treated for bleeding piles. This diagnosis was confirmed by another doctor in 1915. The bleeding would last for a few days and then recur again after a few months. Gradually the attacks became more frequent. In 1926 she was sigmoidoscoped and a small polyp was removed, but without any effect upon her symptoms. In 1927 the hæmorrhages became still more frequent. She became weak and anæmic and complained of shortness of breath. Hæmoglobin on admission was 47 per cent. I examined her with the sigmoidoscope on November 28th, 1927, passing the instrument 10 inches without difficulty. No abnormality was noted excepting for a vascular mucosa in the anal canal. No bleeding occurred at the time. As no cause for the hæmorrhage had been forthcoming I examined her again with the sigmoidoscope on December 13th, with a negative result, and then repeated the digital examination and felt a small posterior anal ulcer. Pressure upon this caused very distinct pain. On re-interrogation it now became clear that the stools were usually passed separately and that bright blood followed. For the first time the patient admitted also to a " bearing-down " pain after defæcation. She was next examined by Mr. Hughes under an anæsthetic, when a small posterior anal ulcer with a spouting arteriole in its base was found and cauterised. General advice about keeping the stools soft was given, and the patient's doctor reported in March of the next year that there had been no further bleeding and that the patient felt better than for many years.

Here, then, was a case of intermittent ill-health dating from 1913 to 1927, with severe anæmia latterly due to a lesion so minute that it had several times escaped detection at various hands. A digital examination and a more careful analysis of the symptoms suggested a diagnosis which direct inspection proved.

(*b*) Here is another case of anal ulcer with different symptoms. A woman, aged 33, was sent to me with an 18-months' history of pain, feeling to the patient " like a fragment of china stuck somewhere low down " in the left iliac fossa just above the groin, passing to a similar point in the back and spreading out into the left hip. Her own doctor favoured a diagnosis of ureteric calculus. I discovered from her that the pain was aggravated by cold and by jolting in a motor car, that the bowels were costive, that for a much longer period than 18 months she had frequently passed a little blood at the end of defæcation, and that defæcation had also been painful. I found no evidence of disease until I came to the rectal examination. This caused undue pain and revealed a tender point corresponding with a small roughened area typical of anal ulcer.

Those of you who are not already familiar with them should read the accounts in Hilton's " Rest and Pain " of cases of anal ulcer with misleading secondary symptoms and referred pains, and particularly the case of the bright young lady in society whose character suffered a striking change, whose abdomen became swollen, who was suspected by one doctor of pregnancy, who became anæmic and suffered much distress of body and mind, but whose symptoms were all eventually shown to be due to a small, painful, anal ulcer.

If I were to give a clinical lecture on " Minor Maladies with Major Symptoms " I should certainly head the list with anal ulcer.

3—ISCHIO-RECTAL ABSCESS

I was asked to see a man who had been troubled for three years by the most wearing pain felt over the sacrum and occasionally radiating along the course of the right sciatic nerve. He had never passed blood, but occasionally there was a little watery discharge after the motion. His doctors had examined the bowel on many occasions, but had found no cause. The sphincter had been stretched twice, with only transient relief. They had been forced to the conclusion that the patient was a neurasthenic, but without feeling satisfied that there was no local physical basis. Close inquiry elicited the fact that the pain, although temporarily easier, was later worse after defæcation. I was lucky, for, on rectal examination, I found at the limit of the finger on the right side a small linear ridge. Pressure upon this caused pain, and also produced a flow of pus down the side of

my finger amounting to half a drachm. It was clear that he had a small peri-anal or ischio-rectal abscess, which probably underwent spontaneous evacuation from time to time.

4—BALL-VALVE ACCUMULATIONS IN THE RECTUM

Occasionally patients, and particularly the more elderly among them, will accumulate large masses of fæcal matter in the rectum of which they cannot rid themselves. This is especially likely to occur after any kind of dehydration, after a gastric hæmorrhage, or after a barium meal.

A woman, aged 60, had been troubled with dyspepsia for some two years and then had a small hæmatemesis. A week later she had a more severe hæmatemesis and passed tarry motions. As the colon seemed to be overloaded, her doctor ordered enemata, which at first brought away some solid material, but later were repeatedly returned clear. For four or five days prior to my visit she complained of constant pain in the rectum and lower abdomen, " bearing-down " sensations, and much anxiety and misery. She had had many confinements, and said the pains were like bad labour pains. She also had pain on passing water. Her doctor feared that she must have carcinoma of the colon. Rectal examination revealed an enormous ball-valve accumulation of fæcal matter, hard and with a greasy surface, receding before the examining finger and feeling in shape and size not unlike a fœtal head. The examination caused intense pain, as it always does in these cases, owing to associated spasm. On the next day she was given an anæsthetic. The accumulation was broken up and removed by lavage with complete relief of all her symptoms. *It is well to remember that the return of an enema unaltered does not prove that the rectum is empty.*

5—A CASE OF ANÆMIA

A young man reported at my Out-patients complaining of general symptoms of anæmia which had developed rather rapidly. He had not noticed anything peculiar about his stools, but his appearance and history suggested that the anæmia might be due to bleeding. Rectal examination produced some tarry matter on the finger-stall, and the diagnosis of bleeding duodenal ulcer was established.

6—OBSCURE PYREXIA

Here is a case in which I failed to make a rectal examination and so to make a correct diagnosis. A young man was taken ill with slight sore throat, fever and malaise. When I was asked to see him he had had an evening temperature of 101° to 102° for two nights, and at the time of my visit it had risen to 103°. He felt ill, but now complained of nothing localising. There had been no shivering, but he had sweated profusely. Although his throat was redder than normal there was no tonsillitis and nothing to be seen which would satisfactorily explain his temperature. A routine examination of his systems was negative; the urine was chemically normal; the leucocyte count was 7,800 cells per cubic millimetre. Although I did not think that he had a septicæmia, I took some blood for cultivation. Now here is a point in the history of which I was aware, but by which I had not been sufficiently impressed. Two months previously the patient had had gonorrhœa for the second time, but, excepting for a slight morning gleet, he had lost all his symptoms. There was no orchitis. After three more days of fever he developed a profuse purulent discharge from the urethra, and the temperature fell. A rectal examination would almost certainly have revealed a prostatic abscess, and would have saved me the trouble of a blood-count and the patient the expense of a blood-culture.

CONCLUSION

There are certain examinations over and above the routine overhaul of the systems which at times become a positive duty. They are examinations which are open to all of us and which require no specialist skill. Among them I would number (1) the naked-eye examination of the stools; (2) the microscopic examination of the urinary sediments; (3) the examination of the fundus oculi; (4) observations on the blood-pressure; (5) estimations of the hæmoglobin and inspection of blood-films; (6) the examination of the pelvic organs in women; and (7) and last, but by no means least, the humble examination which I have made the subject of this lecture.

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A Case for Sherlock Holmes

I THINK most of us must have thought at one time or another of the similarity between a well-worked-out diagnosis in a difficult or obscure case and a keen piece of detective work (of the fictional type, at any rate). At no other time has this been so impressed upon me as in a recent case which I was fortunate enough to see. It represents a condition which has been only very recently recognised and with which, I am ashamed to say, I was unacquainted. To those who recognise the disease the diagnosis will be extremely easy, but for the benefit of those less well-informed I am setting out the history as it was presented, without giving any previous indication of the correct diagnosis. I hope in this way to be able to illustrate how obscure can be a condition which is only too readily recognised once one is acquainted with its nature. I want to make it quite clear that this is not intended to be an official publication of a case but only a discursive article. The making of an official record rests with other people. I give the history as it was taken down at a time when the correct diagnosis was not even thought of.

The patient, on his first admission in January, 1930, was aged 19 years, and was at an Army training college. The onset of his symptoms dated back one year, and during this time he had experienced at diminishing intervals attacks of unconsciousness which had become of longer and longer duration and were accompanied by automatic actions. In the week before admission he had had four attacks, each lasting from two to four hours. The first attack occurred when he was dressing for mess; he remembers the mess bugle blowing and recalls nothing else until he found himself before his commanding officer, who was holding his hand up and asking him how many fingers he could see. Apparently he had dressed clumsily and appeared at dinner somewhat dishevelled; he had eaten a little, but his friends noticed he was not acting normally. He was taken to the school hospital, where he slept for 36 hours. After this attack the spells came on at irregular intervals, usually separated by weeks. In one attack it was noticed that his right eye deviated inwards; this, however, was not a constant phenomenon.

Until one month before admission the attacks had been of essentially the same nature; they usually came on in the morning before lunch on days when he felt " all tired out." Usually there was a premonition, a " feeling inside " him, and ordinarily he told his companions he was not feeling well and wished to be left alone. He then remembered no more for most of the duration of the attack, but characteristically he always finished a task with which he was occupied. On one occasion he was driving a car and reached home safely; another time he was able to drive to a doctor's house when he felt he was becoming ill. Once he drove his car for half-an-hour through city streets without mishap, and it was not until he was nearly home that a companion in the car noticed anything was wrong. On recovering consciousness he had a ravenous appetite, and eagerly ate any food offered. Once during an attack he wrote a letter, and, although the writing was bad, the letter was otherwise passable. He could be easily fed while still unconscious, and his mother had noticed that if she gave him a cup of tea to drink she had to force the first few drops on him, but before the cup was finished he would sit up and drink normally. The patient himself had found eating a piece of candy warded off an attack.

In the last few weeks before admission the attacks had become worse, and were followed by a period in which he understood perfectly what was said and done, but could not make articulate speech or control his extremities. " My brain works all right, but nothing else will." His movements were violent; for instance, on attempting to lift his hand it would be thrown behind his head. Also of late there had been twitchings lasting a few minutes after each attack. At no time had there been generalised ataxia or convulsions.

One day while out in a sailing boat he felt an attack coming on; however, he *forced himself to remain awake*; he took the boat to port, docked it, caught a car home and slept for several hours. This was the only time he had succeeded in warding off an attack. On physical examination nothing abnormal was detected. The Wassermann and Kahn tests were both negative.

This, then, was all that was known of the patient on his admission to hospital. I may say that the correct diagnosis is very easily made from once reading over this very accurate account of his symptoms, which was taken with no knowledge of the real nature of his illness. The diagnosis of epilepsy immediately suggests itself, and it was for this, of course, that he came into a neurological service.

He had been in hospital for five days, quietly resting in bed, before an attack came. This was at the usual time, namely, towards noon, and a house officer was called. Personally, I have the greatest admiration for the intelligence and powers of observation shown by the house officer, for he immediately made the correct diagnosis. The patient was just in the attack and had slight generalised twitchings, and the houseman was at once reminded of an insulin reaction. Once this point had been seized upon the rest was easy. A blood-sugar was taken and found to be 72 mgrm. per cent.

The history was then referred to and the important features noticed that sweet drinks or candy would ward off a threatened attack; that a sweet drink would make him recover consciousness so rapidly that whereas he had to be fed at first he would sit up and finish the cup; that the attacks usually occurred just before lunch and were precipitated by mental worry or physical fatigue. After the attack he was ravenously hungry.

Physical examination now showed no central nervous signs; the blood-pressure was normal; he was drenched with perspiration; he could be roused if compelled, but would groan and fall back. It also transpired that for the first time since admission he had had no breakfast and no dinner the night before. About 15 c.c. of 50 per cent. glucose were now given intravenously, and he regained consciousness as the needle was withdrawn from the vein; in 15 minutes he was normal and walking about.

On the next day he was allowed to do the same. No food was given after midnight, and about noon he became drowsy and was unconscious by 1 p.m.; the blood-sugar was then 65 mgrm. per cent. He was given 20 c.c. of 50 per cent. glucose, and almost before the needle was withdrawn he woke up and asked for food. Food was withheld during the afternoon, during which time he played cards. At 3.30 p.m. he climbed 15 flights of stairs rapidly, feeling quite well and ravenously hungry. He went to bed, but could not sleep as he was so hungry; at about 5 p.m. he became almost hysterical, begging pitifully for food; he was soon unconscious. At 7 p.m. he was as in previous attacks, but deeper and responding in a more typically decerebrate manner to noxious stimuli. The blood-sugar was 44 mgrm. per cent.! He received only 10 c.c. of 50 per cent. glucose, and at once sat up and demanded food.

Two days later a sugar-tolerance curve revealed itself as follows:—

At 7.55 a.m. given 155 grm. of glucose.

Blood-sugar, fasting	..	81	mgrm. per cent.
,, after ½ hr.	..	134	,, ,,
,, ,, 1 hr.	..	132	,, ,,
,, ,, 2 hr.	..	135	,, ,,
,, ,, 3 hr.	..	102	,, ,,

On another occasion the effect of adrenalin was tried; the blood-pressure rose from 120 to 180 mm. The blood-sugar behaved as follows:—

Blood-sugar, fasting	..	77	mgrm. per cent.
,, after 20 min.	..	84	,, ,,
,, ,, 40 min.	..	63	,, ,,
,, ,, 60 min.	..	55	,, ,,
,, ,, 1 hr. 45 min.		56	,, ,,

That he was suffering from attacks of hypoglycæmia probably resulting from hyperinsulinism now seemed quite certain, and a diagnosis was made of an adenoma of the islet tissue of the pancreas.

Before going into the accounts in the literature of the condition I think it best to proceed with the subsequent history.

The nature of the illness was explained to his parents, and the question of an exploratory operation was raised; his father was, however, by no means anxious that this should be done straight away, and he was discharged with instructions to regulate his diet so that it was rich in carbohydrates and poor in fats, to have something every two hours and to limit his exercise.

In June, 1930, he was re-admitted for examination. He had been free from attacks except for one time at school, when his general meal routine had been disturbed by special drills; he began to feel queer, but had no carbohydrate at hand; he was unconscious for one hour, and then on recovering he took some orange juice and was soon himself again. The sugar tolerance was as follows:—

Blood-sugar, 7.20 a.m. (fasting)		86	mgrm. per cent.
,, 7.30 a.m.	..	Given glucose.	
,, 8 a.m.	..	122	mgrm. per cent.
,, 8.30 a.m.	..	152	,, ,,
,, 9.30 a.m.	..	125	,, ,,
,, 10.30 a.m.	..	110	,, ,,
,, 11.30 a.m.	..	57	,, ,,
,, 12.30 p.m.	..	53	,, ,,
,, 1.30 p.m.	..	52	,, ,,
,, 2.30 p.m.	..	57	,, ,,
,, 3.30 p.m.	..	51	,, ,,

His next admission was on October 18th, 1930, and on this occasion I was fortunate enough to see him. He had not been so well since his last discharge. His appetite was poor, he complained of increasing weakness and some diarrhœa; he had had several attacks. During the summer weather he had not been troubled, but the onset of cold weather (perhaps aided by the diarrhœa)

precipitated things, and there was clear indication of the scant margin of safety he had; this was thought further to justify recourse to operation. His father now gave his consent. Dr. Fischer operated on October 22nd, and I am deeply grateful to him for allowing me to make use of this case in this article.

At 3.30 a.m. on the morning of operation 500 c.c. of 10 per cent. glucose were given. The abdomen was opened by a paramedian incision and the pancreas approached through the gastro-colic omentum. Careful examination revealed no sign of any nodular enlargement indicating an adenoma, and accordingly it was decided to resect a portion of the organ. On proceeding with the mobilisation preliminary to resection a nodular tumour was suddenly encountered, and this was shelled out with very little difficulty. It was about as big as the inside of a medium-sized brazil nut. A rubber dam was put down to the pancreas and the abdomen closed.

At 12.30 p.m., immediately after operation, the blood-sugar was 144 mgrm. per cent.; at midnight he was given a further 500 c.c. of 10 per cent. glucose. The following morning, nine hours after any carbohydrate, his blood-sugar was 175 mgrm. per cent. His sugar-tolerance curve before his discharge was quite normal, and he was completely relieved of symptoms. There was a discharge of pancreatic juice for a short time, and then it ceased; there was no digestion of skin.

By a remarkable piece of fortune Dr. R. R. Bensley, of Chicago, who is perhaps the greatest living authority on the histology of the islet tissue of the pancreas, happened to be at the hospital as a visiting professor of anatomy. Dr. Bensley had been extremely anxious to obtain one of these tumours as soon as possible after operation, so that it could be fixed properly in such a way as to preserve the granules. In the few other recorded cases this has not been done, and in the post-mortem cases no such procedure has been possible, for the tissue undergoes changes in two hours which render identification of the granule content of the cells impossible. It was, therefore, peculiarly fortunate for all concerned that Dr. Bensley should himself be present to superintend the examination of the specimen. I will give a fuller description of the histological appearance later in the paper, and it will suffice to say now that the tumour was shown to consist of islet cells containing β-granules. In other words, it was a β-celled adenoma of the pancreas. (It is to be remembered that the β-granules are the precursors of insulin; the function of the α-granules is not fully understood.)

In 1924, Harris[1] suggested that just as symptoms arose from hypofunction of the islets of Langerhans (diabetes), so also might symptoms arise from too much insulin, and to support his contention he described five cases with such symptoms, all of which had a low blood-sugar.

It, however, remained for Wilder and others[2] in 1927 to put the condition on a definite pathological basis by giving full clinical, biochemical and post-mortem details of a case which occurred at the Mayo Clinic. Up till this time some 20 cases of adenoma of the pancreas had been recorded as found post-mortem, but in *no case had any effort been made to inquire into the clinical history of the patient.* Wilder's article, therefore, was to all intents and purposes the first complete account of the syndrome.

The patient was a doctor of middle age, who complained of attacks of faintness and weakness with paræsthetic numbness of tongue and lips. The attacks later became more frequent and more severe, producing great weakness, profuse perspiration and trembling. They came on when his meals were delayed or if unusual exertion was undertaken, and the patient himself discovered he could prevent them by eating between meals or by taking sweet drinks.

The first occasion on which he definitely collapsed in an attack was after he had been operating later than usual; his attendants thought he was quite unconscious, but he was apparently able to swallow an egg-nog which they gave him, and in a few minutes he had completely recovered. The similarity of this phenomenon to an insulin reaction was noticed at once by himself and his associates, and led him to take food at frequent intervals. The tendency to hypoglycæmia later increased so much that he was liable to go into coma after even a short fast, and it became necessary for his wife to watch him when he slept and put candy in his mouth at the first sign of unusual behaviour.

Investigation of his blood-sugar on admission to the Mayo Clinic resulted in discovery very much as in the case quoted here. It was interesting that this man's paternal cousin died of apparently exactly the same condition, and was diagnosed as "myasthenia gravis."

It was decided that operation was the only measure holding out any hope. Dr. W. J. Mayo explored him and found the pancreas was large, hard and nodular, except for the head, which seemed normal. Secondary nodules of growth were felt in the liver. A diagnosis was made of a carcinoma of the islet tissue of the pancreas with metastases to the liver. The patient died one month later, and a growth was found involving the

tail region of the pancreas; insulin was isolated from a secondary nodule in the liver. Only ordinary H. and E. sections of the tumour were made, but these appeared to substantiate the diagnosis of a carcinoma arising in islet tissue.

In 1928, Thalheiner and Murphy[3] recorded a case which was observed and investigated during life and at post-mortem a nodular tumour was found in the body of the pancreas. On section, this was proved to be composed of islet tissue; there was some doubt, however, as to whether it was an adenoma or a low-grade carcinoma.

In 1929, McClenahan and Morris[4] reported a case which was admitted to hospital in coma with a low blood-sugar and died in spite of the administration of glucose; an adenoma was found at autopsy.

Allan[5], in an article published last year, reviews the results of operation in the recorded cases.

The first attempt at surgical interference to follow Dr. W. J. Mayo's attempt was by Finuly, of Baltimore[6], who was unable to find any nodular enlargement of the pancreas and so resected a portion of the tail and body. The patient showed only temporary improvement.

Following Finuly's attempt, two more cases were explored at the Mayo Clinic, and in each of these no abnormality of the pancreas was demonstrable and resection was performed. Both cases relapsed very speedily. Emil Holman (in a personal communication to Allan) has had a similar experience in one case.

The only successful case reported so far was described by Howland and others[7] from Toronto in 1929. This case had a typical history, and at operation an adenoma was found about 1.5 cm. in diameter situated in the middle of the pancreas. It was shelled out without much difficulty, and the patient was completely relieved of all symptoms.

In Dr. Fischer's case it was only by good fortune that the adenoma was found when resection was being attempted, and there can be very little doubt that resection alone, without removal of the tumour, would not have been successful.

It is to be noticed that all the writings on the subject come from the States or Canada.

Once the characteristic history is recognised, diagnosis of these cases is extremely simple, and I feel sure that if the occurrence of the symptom-complex was more widely recognised that many more cases would be encountered, and, in fact, the condition would prove to be relatively common. I have some grounds for saying this, as I shall soon show. The main confusion clearly rests in the central nervous symptoms, and doubtless quite a number of these cases have been treated and are now being treated as various grades of epileptics. A case reported by Hartman[8] (and also quoted by Allan) was known to have ended up in a State institution for epileptics, where he died in an attack and his death was put down to "epileptic exhaustion."

Not many weeks after our first case had been successfully operated on, a former interne, who is now in practice, happened to be visiting the hospital and, while talking over things at lunch, happened to mention to one of the junior members of the staff that he had a patient with peculiar symptoms. The patient complained of attacks of fainting coming on before meals and which were relieved by food or drink. Immediately his friend said to him: "That man has a β-celled adenoma of the pancreas." Just by a casual remark the diagnosis could be, at any rate, suggested on a man over 1,000 miles away. On his return home the doctor took a fasting blood-sugar of the patient, and found it as low as 25 mgrm. per cent. The patient came to St. Louis and was admitted under the care of Dr. Graham.

He was a dairy farmer, aged 46 years, and was first taken ill in December, 1929, when he felt faint while milking a cow early in the morning; after having breakfast he felt well once more. The attacks continued and came on early in the morning or at other times when he had had no food for several hours; he himself found that food relieved him. (It is a remarkable fact that every patient whose notes I have read has discovered this fact for himself, and has even realised it was the carbohydrate that was needed.) His wife used to have food ready and rush to give it to him the instant he came in. He would at times do strange things while in an attack; for instance, his sons noticed that he would go back and milk the same cow over again!

He went to the Mayo Clinic and was there diagnosed as having a cerebral tumour and given luminal. (This is remarkable, for the Mayo Clinic has had more experience of these cases than anywhere else.) He obtained no benefit, however, and went to another clinic, where he was given the same advice. He went elsewhere, and a laparotomy was performed, for it was suggested he was suffering from "intestinal intoxication"; his gall-bladder and appendix were removed.

Lately he had been getting much worse. He was admitted into hospital in the afternoon (about January 31st, 1931), and it was intended to do a sugar-tolerance test the next day; he had no food after midnight, and at 6 a.m. the resident was called as he was in coma; 50 c.c. of glucose were given intravenously, and by the time he had received 10 c.c. he was awake!

A sugar-tolerance test was as follows : 120 grm. of glucose were given by mouth ; he was semi-comatose to begin with, but was more rational when the blood-sugar was high. He remembered nothing of the needle punctures afterwards.

Blood-sugar, fasting	..	50	mgrm.	per cent.
" after 1 hr.	..	175	"	"
" " 2 hr.	..	180	"	"
" " 3 hr.	..	175	"	"
" " 4 hr.	..	120	"	"
" " 5 hr.	..	70	"	"
" " 6 hr.	..	55	"	"
" " 7 hr.	..	50	"	"
" " 8 hr.	..	48	"	"

Response to adrenalin was : blood-sugar rose from 48 mgrm. to 90 mgrm. per cent. in 20 minutes.

On February 4th, 1931, Dr. Graham operated. The abdomen was opened by a paramedian incision and the pancreas was exposed after dividing the gastro-colic omentum. A tumour was easily located on the anterior surface of the body of the pancreas in about its middle ; the overlying tissue was somewhat congested, making it rather prominent. In contrast to Dr. Fischer's case, in which location was difficult and removal easy, the location here was easy but the removal more difficult. No definite line of demarcation could be made out, and so the area was removed by "enucleation resection." Hæmorrhage was moderate, but a useful step was the insertion of a purse-string suture before the tumour was excised ; directly the piece was removed the purse-string was tied and controlled almost all the hæmorrhage ; the rest was easily stopped. After the area had been well peritonealised, a rubber dam was placed down to the pancreas and the abdomen closed. The whole operation took scarcely 30 minutes.

On examination of the portion removed it was seen to contain a definitely encapsuled tumour a little over a centimetre across ; it was somewhat gelatinous in appearance and was a darkish grey in colour with some lighter areas.

The blood-sugar determinations subsequent to operation were :—

Blood-sugar after ½ hr.	..	217	mgrm.	per cent.
(50 grm. of glucose given when blood-sugar not known.)				
Blood-sugar after 5 hr.	..	220	mgrm.	per cent.
" " 1 day	..	212	"	"
" " 1½ days	..	200	"	"
" " 2 days	..	172	"	"
" " 3 days	..	242	"	"
" " 4 days	..	142	"	"
" " 5 days	..	112	"	"
" " 8 days	..	113	"	"

The wound discharged clear pancreatic juice for some time ; this discharge was fairly profuse, for his dressings had to be changed every three hours. On his discharge from hospital some three weeks or so after operation it had almost ceased ; at no time was there any digestion of skin.

I consider the result in such a case is a real triumph of diagnosis and treatment. As a result of certain general signs and symptoms one is enabled to go with absolute precision to an organ deeply situated in the abdomen, find and remove a tumour little bigger than a cherry stone, and *immediately* the patient is relieved of all his symptoms. For instance, 24 hours following operation, when he had had very little glucose at all and ordinarily would have been in coma, his blood-sugar was 212 mgrm. per cent.

In addition to these two completed cases there are three other specimens in the hospital ; one was found a year ago and the patient had had no clinical symptoms referable to it. A second was found during the summer in an autopsy on a young boy at a nearby hospital ; on inquiry into his clinical history it was found he had been subject to " crazy attacks." Finally, Dr. Margaret Smith, an assistant professor of pathology here, found yet a third tumour in a manner which redounds to her great credit. The patient was a man who had been in hospital with attacks of dizziness and coma ; he had a positive Wassermann and a diagnosis was made of either cerebral syphilis or a frontal lobe tumour. At post-mortem no cause for his symptoms could be found. Two or three days later Dr. Smith heard of the case and suspected an adenoma of the pancreas. By great good fortune the pancreas had been preserved, and section of it revealed a small tumour about the size of that in Dr. Graham's case, embedded in the substance of the head of the pancreas. It was well encapsulated and was yellowish in colour. On microscopical examination it appeared to be composed of true islet tissue.

I think this case explains the disappointing operative findings in cases such as Finney's, in which no tumour could be found. It would have been almost impossible to have located this tumour at operation, and it is quite clear that, even if one is fortunate enough to meet with a case presenting the typical syndrome, one must be prepared for disappointment at operation. The tumour may not be satisfactorily situated for removal ; or, in cases such as that described by Wilder, the condition may be malignant. There is no doubt at all, however, that a fortunate case may give one of the most dramatic results that one could hope to see.

When one considers that in the space of six months four proven cases have been found at this hospital alone, and two of them successfully operated upon, then one is forced to the conclusion that others could be found if careful watch was kept open for them. But for a chance remark the second successful case would still have been vainly seeking relief or would have by now succumbed.

FIXATION OF SPECIMENS

Since the certain identification of these tumours depends on the demonstration of the appropriate granules in the cell, it is necessary that the tissue is treated in the correct way. I have mentioned that material more than two hours old is unsatisfactory, because by this time the granules are no longer demonstrable. Similarly, if an incorrect fixative is used it is impossible to demonstrate the nature of the granules. The two cases described in this article are the only two in which such correct treatment has been carried out.

For fixing fresh material such as that obtained at operation two sorts of fluid should be used :—

1. Altman's fluid (which is an osmic acid and bichromate mixture) or Dr. Bensley's modification of this (a drop of acetic acid is added).

Very thin slices of tissue should be placed in the above, for fixation is slow.

2. Zeuker formol or Zeuker acetic.

If only post-mortem material or material older than two hours is obtained, then Zeuker should be used ; there is no purpose in using Altman's.

STAINING

A few words on staining reactions will not be out of place, although I must point out that complete unanimity of opinion has not been reached in this matter. The formula for all the stains or fixatives I mention will be found in full in Lee's " Microtomist's Vade Mecum."

Briefly, the tissues fixed in Zeuker or Zeuker acetic should be stained with Bensley's neutral gentian (which is ethyl violet and orange G.) or Bowie's fluid (which is the same as Bensley's except that Biebrecher's Scharlach replaces orange G.).

This staining will show up granules if they are present in the cells, but it will not differentiate satisfactorily α-and β-granules. (Some workers assert that if Zeuker acetic fixative is used the α-granules stain sky-blue and the β-granules red, but this does not seem to be strictly true for man, and certainly many cells one examines seem to contain granules of a pinkish-blue mixture and quite indistinguishable as one or the other.)

Having ascertained the presence of granules in the cell, the next step is the demonstration of the presence or absence of α-granules, and it is now that the tissue fixed in Altman's fluid comes in. The sections are stained with Altman's aniline acid fuchsin and differentiated with picric acid ; the α-granules stain red. If no granules appear, then one assumes that the granules demonstrated in the first method were β-granules only. It can be seen the identification of β-granules is indirect unless one chances to get a distinct differentiation of colour after staining with Bensley's neutral gentian.

There is yet another way of examining the tissue ; some of the *fresh* untreated material is teased out and stained with neutral red ; all granules of the islet cells will take up the dye. It is thus possible to tell in a few minutes whether one is dealing with a true islet tumour. This method was satisfactorily applied to both the operative cases.

HISTOLOGICAL APPEARANCE

First, Dr. Bensley mentioned a point of some interest ; it is characteristic of islet tissue that the cells exhibit an individual nature ; if the membrane surrounding the islet is ruptured the cells spill out like peas let out of a pod. So it was with these tumours ; when teased with needles the cells broke up at once. Apparently very few other things, excepting some sarcomas, do this.

As the second specimen removed at operation was somewhat better than the first one, I will describe it. The tumour had a thick fibrous capsule, except in one place where there were contiguous lobules of pancreatic tissue. In some places there was almost normal islet tissue, consisting of cords of cells with blood-filled sinusoids between. In adjacent sections one could see a further stage in which cellular proliferation had occurred with the formation of wide cords of cells with some necrosis. In some places the cords of cells were separated by wide strands of hyaline connective tissue which apparently had originated in the blood sinusoids.

Dr. Fischer's case corresponded to this, with the exception that more necrosis was present.

With regard to the granule content, I am going entirely on Dr. Bensley's opinion, and he came to the conclusion that the granules were definitely β-granules, but that many of them were of a modified type. For instance, while some cells contained out-and-out β-granules, others contained granules which were not definitely α- or β-granules.

This latter point, I think, leads up to the next question one has to consider, namely, why is it that when a normal pancreas contains somewhere about a thousand times as much insulin-producing tissue as is necessary for normal needs (this is

Dr. Bensley's suggested figure), that a small tumour little more than 1 centimetre across should have such disastrous results? (Those of us who are acquainted with Dr. Nicholson's views on tumour formation will not raise the point as to why a benign or malignant tumour should exercise a function at all in the body.) The answer doubtless lies in the fact that these modified granules in the tumour cells are in a more labile state than the normal β-granules in normal islet tissue; in other words, there is a condition as much of dysinsulinism as of hyperinsulinism. When one considers the same occurrence in the case of the thyroid and pituitary glands this seems all the more likely, and what at first sight appears to be an instance of simple excess of normal secretion would seem to pass into that still somewhat obscure group of disorders of the glands of internal secretion.

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R. C. B.

Diet and General Health in Relation to Dental Disease

A Dental Lecture by F. N. Doubleday, Esq., L.R.C.P., M.R.C.S., L.D.S., R.C.S., at Guy's Hospital, February, 1931

GENTLEMEN,—Three lecture tours in Canada and the United States have greatly interested me in the problems of diet as they are studied there and taught to the populace. Correct diet and exercise are probably the primary factors in a healthy life. Dr. Bridges, in the "Testament of Beauty," speaks thus of exercise:

> "Best ever is rare, a toilsome guerdon; and prayer is like
> those bodily exercises that athletes wil use,
> which each must humbly learn, and ere he win to power
> so diligently practise, and in such strict course
> as wil encroach unkindly on the agreements of life;
> whence men slouch in the laxity that they call ease,
> rather than rouse to acquiring thatt strength, without which
> the body cannot know the pleasur of its full ease,
> the leisur of strength in the hard labour of life."

That is just and true of most adults; few will face the self-denial, the self-control, the exertion which is necessary to secure that greatest of all boons, *mens sana in corpore sano*.

Wordsworth, describing his early youth, says:—

> "Our daily meals were frugal, sabine-fare!
> More than we wished we knew the blessing, then,
> of vigorous hunger—hence corporeal strength
> Unsapped by delicate viands!"
>
> *Prelude*, Book II, 78-81.

Many a person stuffs down his throat an excess of food, far beyond his requirements, but he cannot utilise it and it is not merely wasted, it clogs and obstructs his alimentary canal, produces constipation and toxins are formed which are absorbed and damage the tissues all over the body. Most adults are poisoned daily in this way, and only after many years become recognisably ill. If food put into the body is to be utilised, it must first be so thoroughly digested that it can be assimilated by the body cells, then the blood must be regularly forced through every organ by proper muscular exertion all over the body. It must be burned up by the tissue cells with oxygen brought into the lungs by deep breathing. Finally, waste products must be regularly removed by the excretory organs, the bowel, the skin, the lungs and the kidney. Diet may be considered from many standpoints, but perhaps the first thing is to learn so to balance the diet that proper action of the bowels is secured at regular intervals. If this does not occur the delicate cells lining the alimentary canal will not secrete the digestive juices nor absorb the food properly, and so the whole mechanism for the assimilaton of food goes wrong from the beginning. The tissues all along the alimentary canal become rapidly damaged, digestion and nutrition are impaired and a vicious circle is set up, with the result that the health of the patient steadily deteriorates. A Guy's teacher, Sir Arbuthnot Lane, was the first to enunciate this principle, upon which all modern practice appears to me to be founded.

Let us consider some of the points concerning the passage of food through the alimentary canal. Bismuth meals have shown that the position and shape of the stomach varies greatly in individuals. In normal persons it is J-shaped, the fundus being

up underneath the cardiac portion of the diaphragm and the body and greater curvature passing downwards, the pyloric end of the stomach curving upwards and backwards to meet the duodenum. In many adults the muscular wall of the abdomen is poorly developed, and, in consequence, the viscera sag and the peritoneum which attaches them to the posterior abdominal wall is dragged away. This results in a lesser or greater degree of dropping of the stomach and often in kinking of the intestine, and so to delayed passage of the food. From the pyloric end of the stomach the food passes through the pyloric sphincter into the small intestine, into which are poured the digestive juice from the pancreas and the secretion from the liver. The surface of the intestine is folded, forming the valvulæ coniventes and the villi projecting inwards, all of which increase its digesting and absorbing surface. From the small intestine the food passes by the ileo-cæcal valve into the large intestine, the residual food travelling along the large intestine into the rectum, from which it should be regularly expelled within twenty-four hours.

Dealing first with the time problem. The X-ray examination of meals containing bismuth given to healthy subjects shows that the stomach wall gradually and uniformly expands to accommodate food which enters and passes gradually on to the pyloric portion of the stomach. Here the peristaltic waves commence and slowly move the food from one part of the bowel to another until it reaches the rectum. As far as nervous control goes the motor impulses come from the autonomic nervous system and the inhibitory from the vagus. Under normal conditions, the stomach should empty itself completely in from two to six hours. This depends upon the size and character of the meal, the condition of the stomach and abdominal walls and the digestive glands. Under abnormal conditions the food may be retained in the stomach for many hours, for example, during the whole of the night. The food, when passed from the stomach into the intestine, undergoes the main process of digestion and assimilation. The intestine performs two movements—one, the peristaltic movement already described, the other, a pendular or pounding movement, churning up the food and so aiding digestion. In the large intestine the waves are peristaltic; in the ascending and transverse colons they are chiefly towards the ileo-cæcal valve. By these means, the passage of food through the large bowel is delayed and a greater absorption of water takes place; in the descending colon the passage of the peristaltic waves is towards the rectum.

For an adult male, 70 kilograms in weight, a food value, equal to 2,500-3,000 calories, is required each day. Under the conditions of modern life, many individuals exceed this amount. An adult only needs to replace his waste of muscular, nervous and other tissues; many people not only grossly over-eat, but mix the most unsuitable foods together in one meal, and this is a fruitful source of digestive disturbance. On the other hand, many patients suffering from digestive disorders are afraid to eat, and so do not take enough food to keep themselves well. Almost every person who is sufficiently out of health to need treatment suffers from an improperly balanced diet, often as the result of their own faddy notions upon the subject.

We see, therefore, that an essential diet must provide a sufficient but not an excessive number of calories to meet the needs of muscular, nervous and other tissue waste and to supply not only proteins, carbohydrates and fats, but also mineral salts, vitamins, water, etc. Protein is the nitrogen constituent of food. It yields the aminoacids necessary for the repair of tissue breakdown and for the formation of the essential secretion of the body. It stimulates metabolic activities and is an important source of energy, each 1 gram of protein yielding 4.1 calories. Protein is contained in most suitable form in milk and cheese, egg, meat, and especially in glandular tissues such as liver, pancreas, kidneys, intestine and many vegetables. Many people have an exaggerated idea of the importance of meat in the diet. One pound of meat gives rise to about 400 calories. Theoretically, over 6 lb. of meat must be used daily, but this is far more than the alimentary canal can digest and absorb. Other proteins, additional fats and carbohydrates make up the necessary energy. One gram of fat liberates 9·3 calories. It may be taken as milk, butter, animal fats in mutton, beef, etc., in olive oil, cod liver oil, etc. The natural fats, such as butter, are rich in vitamins A and D; these vitamins are closely related to cholesterol which, with lecithein, is an essential constituent of all cells and cell membranes. Fat is stored in the body and is a valuable reserve of food, provided that it is not stored in excess. Carbohydrates are readily available sources of energy, each gram yielding 4.1 calories. Its presence in a utilisable form is essential for the complete combustion of fat. Probably the formation of lactic acid from glycogen is the essential step in the contraction of all forms of muscle skeletal, cardiac and smooth. Bread, potatoes, many fruits (such as dates) and sugar are the main sources of carbohydrates. There is no need to recapitulate to a dental audience the importance of eating and

thoroughly masticating all food. Mastication breaks up masses of food into small particles and allows the digestive juices to get in among the food and so to act upon it. As Pavlov has demonstrated, vigorous biting of food first stimulates the secretion of the salivary glands, the hormones from which lead to the secretion of the gastric, pancreatic and other digestic juices.

Modern research has shown that a correct proportion of mineral salts is of great importance to the adult. The principal salts are those of calcium, phosphorous, iron, sulphur, sodium, chlorine and iodine and copper. Calcium throughout life is necessary to ensure the permeability of the endothelium of the capillaries, the normal clotting of blood, the excitability of nerve tissue, the contraction of the heart muscle, the activation of trypsinogen and other functions. In normal diet it is principally contained in unheated milk and fresh green vegetables. Calcium is lost from many green vegetables when cooked, but spinach does not part with it, and so with milk and fresh green vegetables is an important source of this base. Phosphorus is needed in adults for the regulation of the reactions of blood and urine, in the metabolism of fats, carbohydrates and proteins. It is found in milk, egg yolk, cellular tissues, liver, pancreas and brain. Iron, which is essential for the formation of the hæmoglobin of the red blood corpuscules, is taken in animal food and in the chlorophyl of green vegetables. Liver and kidney are essential for its proper assimilation. Copper is also necessary if the body is to be enabled to build up iron into hæmoglobin. Copper salts are contained in the same foods, and notably in liver and lettuce.

We see, therefore, that :—

1. Food must be of such a character and of such proportions as to make the bowels act regularly.

2. It must be assimilable and contain proteins, carbohydrates, fats, mineral salts, activating agents (vitamins) and cellulose in suitable proportions.

3. Respiration must thoroughly oxygenate the lungs and so burn up the food in the tissues.

4. The balance between alkalosis and acidosis must be maintained.

5. The body weight must be kept steadily at an average level.

In considering these headings more fully, the following observations are made :—

1. Food must be of such a character and of such proportions as to make the bowels act regularly. The cellulose contained in fresh vegetables, notably in celery or lettuce and in fresh fruit, *e.g.*, in raw apples, swells up in the large bowel and so gives bulk to the fæces. This is necessary in order that the intestinal wall may have something to contract upon and so maintain peristalsis. It especially aids the passage of the fæces from the sigmoid flexure into the rectum, an act which must precede normal defæcation. The term "roughage" is applied to whole wheat and bran foods ; these are also of much value in stimulating the peristalsis of the bowel by the indigestible residue which they leave and by means of vitamin B, which is contained in wholemeal bread, but is absent from white roller-milled flour. The stomach must be considered as well as the bowel. It will not do to fill the stomach with indigestible food, and many cannot manage comfortably to pass too much rough food through the stomach and small intestine. It is entirely a question of proportion. Agar-agar is one of the modern preparations intended to aid the bowel in this respect and liquid paraffin is another which keeps the fæces soft and sufficiently fluid to aid evacuation.

2. Then food must be assimilable and of suitable proportions. This heading demands a paper to itself. It must suffice here to re-emphasise the importance of larger quantities of milk, fresh butter, fresh green vegetables and raw oranges, apples and other fruits ; the diminution of the amount of red meat which is taken and its replacement by larger quantities of glandular meats such as sweetbread, liver, kidneys and tripe. Patients with high blood pressure must be careful not to take too much nucleo-protein. Tea and coffee drinking need to be greatly reduced and tobacco and alcohol should be totally eliminated. The ideal drink is cold water, and it may be varied by warm water, lemon tea and the alkaline water of certain springs.

3. Respiration is essential if the food is to be properly used in the tissues and to yield its full supply of energy. The occupation of a dentist seriously interferes with deep respiration, and this must be compensated by regular out-of-door exercise accompanied by deep breathing. This not only oxygenates the blood and hence the tissues, but is also an important means of eliminating waste products (CO_2) and of counteracting acidosis. Deep breathing on first lying down at night is beneficial. Other means of waste elimination are by the kidneys, by free drinking of water and by the skin. In modern man the skin is muffled in by thick clothes and given little chance to function properly. Natural and artificial sunbaths help to promote proper action, and, in addition, aid the formation of vitamin D in the skin. Skipping, tennis or squash racquets and baths of all kinds, especially swimming in salt water, help to keep the skin functionally active.

The balance between alkalosis and acidosis must be maintained. This subject is fully discussed in Mr. Broderick's admirable book upon "Dental Medicine." Broadly speaking, meats and seeds give end-products which are acid in reaction and fruits give alkaline end-products. The normal hydrogen ion concentration of the body varies very slightly, because the blood contains "buffer substances" which check any marked reaction one way or the other. Sodium bicarbonate is one of the most important buffers, and both the gastric contents and the general reaction of the body are benefited in many individuals by occasional small doses of sodium bicarbonate in soda water. Dr. Hurst has demonstrated that in many individuals the stomach becomes clogged with mucus; this especially occurs during sleep. The mucus may be dissolved and the digestive and muscular activities of the stomach restored by taking sodium bicarbonate followed after a few minutes' interval by a hot drink of lemon tea. It is most important not to eat too much at any one meal and to endeavour to keep to a simple balanced diet, not mixing too many kinds of food at one time. Reasonable quantities of duly proportioned food, with the mineral salts, vitamins and cellulose contents intact, will stimulate digestion and the passage of food and help in the formation of appetite juice. Long ago Pavlov showed that the sight and smell of food would stimulate the flow of gastric juice in dogs where the food never entered the stomach at all. This mental appreciation of appetising, wholesome and well-cooked food is a great aid to digestion. Dr. Bridges, in his "Testament to Beauty," says :—

> "Thus the digestive kind is stirr'd by touch of food
> within the body, or by the sight or sound or smell
> of the object, or ev'n by the unconscious thought thereof."
>
> *Book IV*, 806-808.

To be free from mental worry and stimulation during meal-times is a great asset. To refrain from even looking at letters until after breakfast, never to read the *Daily Mail* or Edgar Wallace, and to refuse to allow any interruption during meal-times are primary rules of good health. Probably all men have at some time experienced the indigestion which comes from vagal inhibition when some person or occurrence has caused acute annoyance just before or during a meal.

I cannot do better than close with some advice given by Francis Bacon in his essay "Of Regimen of Health," written about the year 1600. He says :—

"Discern of the coming on of years, and think not to do the same things still for age will not be defied. Beware of sudden changes in any great point of diet, and if necessity force it, fit the rest to it; for it is a secret, both in Nature and in state, that it is safer to change many things than one. Examine thy customs of diet, sleep, exercise, apparel, and the like, and try, in anything thou shalt judge hurtful, to discontinue it by little and little. . . . To be free minded and cheerfully disposed at hours of meat and of sleep, and of exercise, is one of the best precepts of long lasting. . . . I commend rather some diet for certain seasons than frequent use of physic, except it be grown into a custom; for these diets alter the body more, and trouble it less. . . . In sickness, respect health principally, and in health, action; for those that put their bodies to endure in health may in most sicknesses which are not very sharp, be cured by diet and tendering."

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Samson Wright.—Applied Physiology. Oxford Medical Publications.
McCallum and Simmonds.—The Newer Knowledge of Nutrition. Macmillan, 1929.
E. P. Poulton.—Practice of Medicine. Churchill, 1930.
F. W. Broderick.—Dental Medicine. Heinemann, 1928.
Langdon Brown and Hilton.—Physiological Principles in Treatment. Ballière, Tindall & Cox, 1930.

Nursing News

THE following nurses were successful in passing the Final State Examination in February last, and their names have been entered on the general part of the State Register :—

Bristow, U.
Baker, W.
Etches, B.
Forbes, A.
Gordon, P.
Gummow, I.
Holliday, R. R.
Huggard, E.
Jones, N.
Lillywhite, F. E.
Pakes, H. E.
Martin, F.
Richards, M.
Smith, G. B.
Stanton, H.
Turner, L. S.
Young, M. B.

Reviews

Enzymes. By J. B. S. HALDANE, M.A. (Monographs on Biochemistry). Published by Messrs. Longmans, Green & Co. *Price* 14*s.*

BIOCHEMISTS will find in this book a very useful summary of recent work and modern views on enzymes, their nature and action. Owing to exigencies of space, the author admits he has had to assume a considerable amount of knowledge in his readers, and therefore we can only recommend this work to advanced students who have already had first-hand dealings with the subject.

Prof. Haldane in his opening chapter reviews the normally defined properties of enzymes and the history of their discovery and investigation. He states that his book will be long out of date before an enzyme is prepared synthetically, but we would venture to consider this unduly pessimistic! He then proceeds to the consideration of optimal hydrogen-ion concentration, and compares the theories of Michaelis and Northrop. The former holds that the optimum pH corresponds with the isoelectric point and condition of minimal charge of the enzyme, while the latter considers it depends on the degree of dissociation of the substrate. Northrop's theory has always appealed to us as a very plausible one, but recent work on the adsorption of amino-acids seems to show that these substances, at least, are most adsorbed when least ionised.

He then passes on to deal with theories of the union of enzyme and substrate, and the effect of substrate concentration on the velocity of reaction. The theory of Michaelis and Menten is chiefly mentioned. Using this theory, from certain figures, constant for any given enzyme, the velocity of reaction can be calculated. This theory is criticised on kinetic grounds, and various exceptions are cited, especially those in which one enzyme can act or two or more substrates, and also those in which reaction ceases below a certain limiting concentration of substrate. The question of union of enzyme and substrate is also discussed with relation to the competitive and non-competitive inhibitors, and also to the protective action of the substrate against heat and chemical agents.

After giving a full review of the literature on temperature coefficients, Prof. Haldane turns to the mathematical basis of the kinetics of reaction. Dealing first with monomolecular reactions, he takes cases where the enzyme and substrate vary in concentration, and also others of accompanying enzyme destruction and reversible reactions. These are all shown to fit fairly well with the Michaelis-Menten theory. In the case of bimolecular reactions, so many assumptions have to be made that the mathematical development is not satisfactory. The kinetics of further cases, such as consecutive reactions, are also considered.

The vast literature on the specificity of a large number of enzymes is then dealt with. While the facts cited are of great interest and offer grounds for wide speculation, they show that at present we are not in possession of any satisfactory explanation of these phenomena. Some enzymes, such as invertase, have a very narrow specificity, while peroxidase, on the other hand, activates a wide range of substances, including iodides.

After a description of activators and co-enzymes, such as Harden and Young's co-zymase, Prof. Haldane proceeds to deal with enzyme poisons. These reveal, to a large extent, the nature of the composition of enzymes, or at least of associated impurities. Thus one class of inactivators are protein precipitants, another oxidising agents, while a third class, the capillary-active bodies, clearly show the effect of blocking the active surface by selective adsorption. From this, one naturally passes to the purification and chemical nature of enzymes. With regard to the discussion of the latter, we are confronted with the difficulty of deciding whether the protein bodies almost invariably present in the purest preparations are part of the enzyme or are adsorbing it. In the cases in which the removal of the protein moiety has been accomplished, this is always accompanied by either a greatly increased lability of the enzyme or a great loss in its activity. This would suggest that the protein is exerting a protective adsorption, and, in accordance with this idea, Willstatter and Fodor consider enzymes to consist of an active group, and a colloidal carrier group. On the other hand, however, several enzymes have been prepared protein and carbohydrate free, especially by Willstatter, so it is possible that the other results are due to technical difficulties. Prof. Haldane, on mathematical grounds, considers that peroxidase which has been obtained protein and carbohydrate free, cannot be much further purified.

In the last chapter, the theories of enzyme action and the classification of enzymes are discussed. Activation of the substrate and, in the case of hydrolysing enzymes, activation of water are considered, but it is clear that no theory fitting all cases, or even a large number of cases, has yet been enunciated. The various linkages attacked are used as a basis in classification, and a formidable list is produced.

In conclusion, one can say with emphasis that this book supplies a definite want, and that the literature is summarised in a concise and convenient form. Over 600 references are quoted. The student who wishes to keep abreast of modern enzyme work will find it invaluable.

The Treatment of Chronic Deafness by the Electrophonoide Method of Jund-Burgert. By GEORGE CATHCART. 2nd Edition.

WHEN the author of this book undertook the publication of a revised edition of Hunter Tod's " Diseases of the Ear " he included in the section on treatment a description of the electrophonoide method of re-education. For this he was criticised by the reviewer of the book in the *St. Bartholomew's Hospital Journal*, who stated that this method of treatment had no value whatever. This hospital happily boasts more progressive methods, and a similar apparatus to that described by Cathcart is to be available for the use of out-patients in the Ear Department. The authorities evidently agree with Cathcart that the uninformed opinion expressed in the *St. Bartholomew's Hospital Journal* is itself of no value whatever.

With the publication of the new edition of " The Treatment of Chronic Deafness," Cathcart has consolidated his claims to consideration. Six hundred cases have now been under this treatment, a very fair measure of success attending its adoption, and this in a field in which hitherto treatment has proved of little or no avail. The new edition is embellished with a number of excellent illustrations and the whole publication is assuming more the form of a serious contribution to the treatment of diseases of the ear in general than an appeal for the acceptance of a specific form of treatment by an enthusiastic protagonist.

As in the original edition, a complete account of the operation of the electrophonoide is included, with a table of the results obtained in nerve deafness, chronic otitis media and otosclerosis showing improvement in 68 per cent. of the cases. The subject is treated in a discoursive style which is altogether attractive, the book maintains its original compact form, and is a monograph indispensable to practitioner and specialist alike, who wish to be in touch with the latest methods of treating deafness.

Sport

Rugby

Guy's v. Old Alleynians

THE Hospital visited Dulwich on Saturday, March 21st, and wound up the season's programme with a convincing win over the Old Alleynians by 4 placed goals, a dropped goal and a try (27 points), to a placed goal, 3 penalty goals and a try (17 points).

Guy's made several changes from the side that played against Bristol. Wailer occupied the position at full-back and, with Windsor Lewis injured, Clegg appeared at fly-half and Burrows came in at right centre. Both O'Shea and Kunovsky were unable to play, and Drummond and A. R. Clarke filled the vacancies in the pack. On the other hand, the Old Boys were without their full-back, Whiteley, who was representing England in the International against Scotland.

It was a perfect day and the turf in excellent condition when Guy's kicked off with the aid of the slope and the advantage of a gentle cross-wind. The Hospital immediately got to work, and as the result of a good run by Ashdown, kept the home side penned in their 25. The ball came across from the right and Wailer, who had come up with the three's, accepted a pass 35 yards from the line and, after handing off two opponents, zig-zagged through the defence and scored a fine try, which Hogbin converted.

From the kick-off the Old Boys made a desperate effort to get through, but this was checked when Howell gave a clever reverse pass to Clegg, who sent Ashdown away on the right for an excellent run, which only broke down 5 yards from the line.

After Guy's had been penalised and following a long-range drop at goal by Wailer, the home side carried out an excellent bout of passing, after Frankford had cut through cleverly. The latter eventually drew the defence and sent in Knowland for a well-deserved try, which Stark converted. Knowland, in his effort to score, was badly hurt and took no further part in the game; this was bad luck for the Old Boys, as they had to take King out of the pack to complete their back division.

Almost from the re-start Guy's took the lead as the result of a perfect bout of passing between Howell, Clegg and Giesen. The last-named made a glorious deceptive run in which he beat several opponents and touched down for a try too far out for Hogbin to add the extra points.

For the next few minutes the Hospital line underwent considerable pressure, and their defence was sorely tried. On two occasions Frankford

came within an ace of scoring, but Giesen and Clegg marked with telling effect and did extremely well to prevent this brilliant centre from crossing. Guy's relieved as the result of a penalty awarded near their goal-line, and eventually Clegg made a brilliant cut through the centre and punted forward. Morgan was up and carried on the movement by scoring a really good try near the posts, which Hogbin converted.

Near the interval the home side reduced the deficit as the result of a splendid unconverted try scored by J. A. Pettifer. The Old Boys' forwards came away with a dash and King started a great round of passing in the Hospital 25—the ball was sent via Hellier, Heppinstall to Pettifer, who just managed to touch down with Johnson hanging on.

For the first few minutes of the second half the Old Boys pressed considerably, and good runs by Frankford and J. A. Pettifer nearly ended disastrously for Guy's. However, the Guy's pack, ably led by Hogbin and Batchelor, made a dashing raid to the Old Alleynians' 25, but off-side against the Hospital gave Stark an opportunity of trying a shot at goal from half-way.

Another effort by the Guy's forwards, in which Hogbin was conspicuous, nearly met with success, but Hogbin was pulled down in the 25. The home side retaliated with an equally fine effort, and, with Wailer tackled in possession in front of the posts, Guy's were penalised for hanging on to the ball and Stark kicked an easy penalty goal.

Within a minute or two, Giesen made a very clever interception and, running strongly from mid-field, swerved right through the defence for a great try behind the posts for Hogbin to add the extra points. Although at this period Guy's were on top, the Old Boys never gave up trying, and good runs by Frankford and Davies nearly met with success, but it was only the result of superb tackling which kept them out. However, Guy's in the excitement got off-side, and Stark reduced the Hospital's lead to four points when he landed a fine goal from a difficult angle.

A delightful round of passing between Howell and Clegg, which was carried on by Giesen broke down when the latter gave a forward pass to Johnson, who had a clear run in behind the posts.

The Hospital were now playing with plenty of dash, and twice in quick succession compelled the Old Boys to touch down. The Guy's pack were a live force and simply swarmed on the goal-line—from one of these attacks the ball came back to Clegg, who dropped a brilliant goal. Guy's came near to scoring on two or three occasions, but a sudden breakaway by the home pack compelled the Hospital to concede another penalty for off-side, and again Stark added the goal points.

In the last minute a round of passing along the whole back division reached Ashdown, who completed a perfect movement by running strongly and scoring easily behind the posts for Hogbin to add the major points.

It was a particularly interesting game to watch, and the Hospital gave a very impressive display. Admitted, the old Boys were a man short for three-parts of the game, but the Guy's forwards did particularly well against one of the best packs in town.

Ably supported by the halves, the three-quarters were given plenty of opportunity of showing their ability. Their defence was just as good as their attack, and Wailer at full-back was very safe and reliable.

Team.—L. Wailer; D. E. Ashdown, L. G. Burrows, J. E. Giesen, A. G. Johnson; W. B. Clegg, J. Howell; J. S. Batchelor, R. J. Drummond, A. R. Clarke, I. G. Robin, L. B. Hilton, R. A. P. Hogbin, J. R. F. Popplewell, T. Morgan.

Boxing

IN spite of being without training quarters, due to the Pavy gymnasium being re-decorated, Guy's team were third to St. Thomas's in the United Hospitals' Boxing Competitions held at the London Sports Club. St. Mary's were second.

Guy's had three finalists in C. G. Palmer (fly-weight), R. A. Johnson (light-weight) and J. Timpson (middle-weight). Timpson won two bouts before losing to Hodges, of St. Thomas's, in the final.

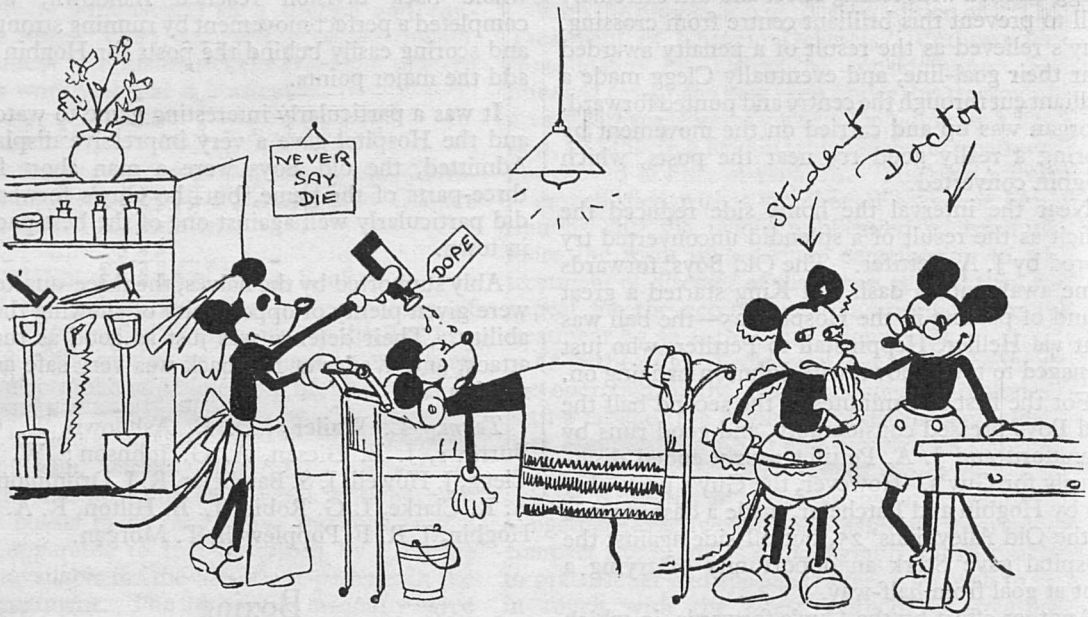
Palmer, although having only recently recovered from an attack of influenza, reached the final in fly- instead of bantam-weight, whilst Johnson, besides being a finalist in this competition, was the only one of a Guy's team fit enough to compete against London University at the Stadium Club in January. Then he won his bout in spite of a bad cold.

Mackay (light heavy-weight) proved himself a clever boxer in a bout with a much stronger opponent in deftly avoiding the punishment taken so gamely by Levitt (heavy-weight), who had no training at all.

Much of Guy's comparative success was due to Mr. Alf. Hewitt, who so ably seconded our men, thereby reducing the handicap imposed by their lack of fitness to a minimum.

Great enthusiasm was shown throughout the evening by the various partisans of the boxers. The judging was excellent, as some of the contests were very close indeed.

MICKY MOUSE'S MASTOID



Georgie Mouse goes through it

Hospital Information, etc.

Pass List

UNIVERSITY OF LONDON.

SECOND EXAMINATION FOR MEDICAL DEGREES

PART I.

P. W. G. Baxter	W. N. Mann
J. A. G. Carmichael	J. H. Mayer
D. A. Davies	W. J. Mitchell
G. C. Denny	F. O. Potter
J. R. Forbes	J. E. Spalding
J. A. J. Hammond	D. P. Stevenson
P. B. Hanbury	C. W. H. van der Post
T. H. Hills	A. B. Wayte
G. H. W. Keates	E. D. H. Williams
F. B. Lake	I. Zieve

THIRD EXAMINATION.

PART I.

Dental Surgery.

†A. E. Fisher G. B. Hunter

† Awarded mark of distinction in Pathology and Bacteriology.

Papers by Guy's Men

H. W. Barber. (1) Two cases of congenital ichthyosiform erythrodermia. (2) Psoriasis arthropathica. *Proc. R.S.M.*, 1931, xxiv, 513.

L. Forman. Healed gangrenous purpura of legs. *Proc. R.S.M.*, 1931, xxiv, 519.

Sir F. E. Shipway. Rectal narcosis. *Clin. J.*, 1931, lx, 121.

C. Worster Drought and T. R. Hill. Ataxia of cerebellar type following diphtheria. *Proc. R.S.M.*, 1931, xxiv, 567.

Change of Address

J. V. C. Braithwaite, M.D., 26, Victoria Park Road, Leicester.

Dr. C. P. Blacker, Pasturewood, Shamley Green, Surrey.

Dr. W. J. E. Radford, The Old Rectory, Marazion, Cornwall.

E. Samuels, B.Sc., L.D.S., 17, Davidson's Mansions, Eloff and Bree Streets, Johannesburg.

Birth

CANN.—On March 21st, 1931, at 14, Carlton Road, Putney, to Gwendolen, wife of R. J. Cann, M.S.—a daughter.

EDS. { P. M. F. B. / P. V. R.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

Volume XLV — *18th April* 1931 — *Number* 1115

PASSIM

SOME months ago we were bold enough, and perhaps tactless enough, to write down in black and white what were our real thoughts on the female doctor. Since then our opinions have been confirmed, and our vocabulary of polite swear words increased, by a large bulk of correspondence on the subject, of which we published some of the less noxious and expurgated copies.

Let us now, with great diffidence and with extreme tact, as we have to work with them every day, talk about the nurses and the sisters, especially the sisters.

Only when one has done a few appointments at a large general hospital such as this, does one begin to realise the enormous amount of work done by the nursing staff and to value the advice and the experience of the sisters at their true worth. To be strictly impersonal, we will recite the completely hypothetical story of a Mr. X who, after devoting five years of his early manhood to incessant study, became a DOCTOR, and in the course of time his talents were recognised by his being offered an appointment at this hospital, or, to be more strictly impersonal, any hospital, though, if you cannot think of any hospital off-hand, this hospital will serve our purpose.

When he was a dresser and a mere student, he had been inclined to resent the somewhat high-handed behaviour of some of the sisters, and, again *very, very* impersonal, in especial one Sister Z; but when he became a house officer in her ward he resolved to bury all his resentment and to learn from her all he could about after-treatment and such details of general nursing. Like most other young house officers, he was intensely humble and intensely anxious to learn, though his humility he cloaked as well as he could when he happened to be talking to fellow-housemen or to his dressers. He learned many things, and the main fact engraved on his memory was that women are sweet things, but rather difficult to understand; or, in other words, that they need to be kept under. He was willing to learn from this Sister; he was willing to let her run the ward until he could take the measure of his work, since he realised that she had been in the ward for years when he had been in it for days, and that she knew every fad and fancy of his surgeon. So long, therefore, as she was tactful and he was new all went well; she did what she liked, so did he. When, however, the velvet began to wear a little and to reveal the hard, mailed fist underneath, he was horrified and disgusted to see her estimation of his value. Briefly, it amounted to this: that he wore a white coat, walked round the ward with her every morning and that he usually arranged his own operating list; he could also order morphia and nepenthe and check them. This was very humiliating, besides being very true—perhaps because of being so very true.

Sister Z knew that she was indispensable, and then she began to annoy him by talking of her responsibilities. That sisters have their responsibilities we are all aware, but that they are responsible for the actions of the housemen who are, we will not say "in their charge," but rather "collaborating with them," was too bitter a pill for poor X to swallow. He, poor dupe, had imagined that, if the worst came to the worst, he was directly responsible to the Superintendent and his conscience, but he began eventually to feel that even his conscience was owned and directed by Sister Z.

There were then remonstrations, he feeling that he could not be sat upon in such a heavy fashion and she feeling that, now or never, she must have her way or for ever hold her peace; and, after remonstrations, obstructions.

After a sister has been in charge of a ward for a few years, she begins to realise exactly how much she ought to do and how much she can do if she likes; and obstructionism merely means that she discovers to view a hedge of rules and by-laws which ordinarily are never heeded; in other words, she does just what she ought to do and not much more.

By this time, poor X has done one of two things —committed suicide or left the hospital, and it is a just dispensation of the Superintendent and Providence that the house appointments never last more than six months.

A short time ago a man wrote to the papers suggesting that we should convert some of our millions of unemployed into male nurses and so find them work. In view of the continued shortage of nurses this does not seem so fantastic on second thoughts. Perhaps this change will come, but it is doubtful if we see it in our time—woman seems to be as strongly entrenched in nursing as man is in medicine, and, while she may exercise her undisputed privilege of changing her mind, she may, and this is far more likely, employ her wiles and change ours.

Gastro-Jejunal Ulcer

A Clinical Lecture delivered at Guy's Hospital, March, 1931, by R. P. Rowlands, Esq., O.B.E., M.S.

GENTLEMEN,—I agree with Balfour[1] that "recurrence of ulceration may follow any operation for peptic ulcer, including partial gastrectomy."

Gastro-jejunal ulcer, of which two interesting examples are recorded below, is the commonest secondary ulcer, and is the most serious complication of gastro-jejunostomy. It may appear at any time, from a few days to twenty or more years, after the primary operation. It is taught that a new ulcer appears sooner or later, at or near the stoma, after about 3 per cent. of gastro-jejunostomies performed for duodenal ulcer, and after 0.8 per cent. performed for gastric ulcer.[2] Balfour found the percentage to be 1.6 after 8,600 gastro-enterostomies at the Mayo clinic. After treating many of these difficult cases, I have come to the conclusion that gastro-jejunostomy should never be performed, except after due consideration and with the greatest care to make the anastomosis a perfect one. But I do not wish to give a false impression of this operation. When reserved for suitable cases, and when well and carefully performed, it is a very good one, and gives excellent results in the large majority of cases.

In 1930, Dr. A. P. Luff,[2] the well-known consulting physician, drew up a careful report for the British Medical Association on a collective investigation into the after-history of gastro-jejunostomy. Reports of 2,609 of these operations performed by 86 surgeons between 1920 and 1924, were presented in 1928. The after-results were chiefly reported by the family doctor; the operative mortality for duodenal, pyloric and gastric ulcer respectively was 5, 2.6 and 8.9 per cent., and the ultimate results were good in over 90 per cent. of all the cases.

Nevertheless, gastro-jejunostomy should not be performed unless there is a visible and palpable lesion, such as an ulcer or obstruction in the stomach or duodenum; and for duodenal or gastric ulcer it should not be performed until medical treatment has been well tried and has failed. Such complications as gastro-jejunal ulcer and vicious circle should make us hesitate to choose this particular short circuit without due consideration and care. In many cases, some form of gastro-duodenostomy is better, safer, and to be preferred because it does not so fundamentally alter the anatomy and physiology of the stomach and duodenum and is not attended with risk either of gastro-jejunal ulcer or of vicious circle.

Before the operation, the patient should be prepared with the greatest care and all sources of sepsis in the mouth and elsewhere eliminated as far as possible in order to prevent secondary ulceration. For the same reason, careful and prolonged after-treatment is of the greatest importance.

Gastro-jejunostomy is very rarely required as a part of the treatment of perforated duodenal or gastric ulcer; but, unfortunately, it is not uncommonly performed, and I have had subsequently to disengage six of these vexatious anastomoses on account of gastro-jejunal ulceration. It is enough to close the perforation. Primary gastro-jejunostomy adds considerably to the immediate risk; most of these patients get well without the

need even of a secondary gastro-jejunostomy, only about 25 per cent. of them requiring it, and we have not means of telling at the time of the perforation which of the patients may subsequently need a gastro-jejunostomy.

PATHOLOGY

A gastro-jejunal ulcer is one that forms upon the margin of the gastro-jejunostomy, involving both the stomach and the jejunum at the line of union. It may even encircle the stoma, and by fibrosis tend to narrow the opening, which may finally become completely closed, as not infrequently happened after the use of the "Murphy button." Jejunal ulcers are less common; they develop in the jejunum near the anastomosis, usually just below the stoma or in the first four inches of the efferent limb of the jejunum, very rarely in the afferent limb. The ulcer is generally small, but it may be deep and invade the pancreas, the transverse colon, or a neighbouring coil of small intestine, into any of which it may ultimately perforate. It may perforate into the peritoneum, causing a grave form of peritonitis, or even into the abdominal wall, causing a parietal abscess or cutaneous fistula. It may ulcerate into a large artery, such as the middle colic, causing severe, or even fatal, hæmorrhage.

ÆTIOLOGY AND PROPHYLAXIS

The causation and prevention of gastro-jejunal ulcer are very important; certain facts bearing on these may now be considered.

Out of 270 cases at the Mayo Clinic, 248 were males and only 22 were females—a ratio of 11 : 1, whereas the ratio of gastro-jejunostomies performed was only 3 : 1. Secondary ulceration is far more likely to follow when the primary peptic ulcer is duodenal rather than gastric. Balfour[3] found that ". . .of those cases in which gastro-enterostomy was performed at the clinic, gastro-jejunal ulcer followed an operation for duodenal ulcer in 130, and followed operation for gastric ulcer in only nine. While this ratio is 15 : 1, the ratio between the number of cases in which gastro-enterostomy was performed for duodenal ulcer and those in which it was performed for gastric ulcer is 7 : 1."

These facts are significant and tend to show that men's habits and occupations have some relation to secondary ulceration. Men are more prone to excessive smoking and drinking; they have more laborious mental and physical occupations, and generally less leisure, with more irregular meals.

Excess of free hydrochloric acid in the stomach and in the bowel, at or near the stoma, has always been considered an important cause. This is supported by the absence of secondary ulceration (other than rare instances) after gastro-jejunostomy for cancer of the stomach, and its undue frequency after the operation for duodenal ulcer. In the latter case, excess of free hydrochloric acid is constant before operation, and often after it, as shown by A. F. Hurst.[4] Hyperchlorhydria is rarely associated with gastric ulcer, and therefore gastro-jejunal ulcer rarely follows gastro-jejunostomy for this condition.

The hypertonic type of stomach, commonly seen in cases of duodenal ulcer, is particularly subject to recurrent ulceration; but any of the errors of habit or of sepsis which may have contributed to the causation of the original peptic ulcer, unless they are eliminated, may cause the appearance of a secondary ulcer. Notable among these causes are: imperfect mastication, irregular meals, and septic teeth, tonsils, sinuses, appendix or gall-bladder. During the majority of my operations for gastro-jejunal or jejunal ulcer I have found and removed a diseased appendix. Infection, from an open duodenal or gastric ulcer left behind, may be grafted upon the stoma.

Anatomical and physiological errors at the stoma are important causes of recurrent ulceration. Among these may be mentioned a small, kinked or wrongly-placed stoma which does not drain away the over-acid gastric juice properly or allow the bile and pancreatic juice to reduce its acidity. Bruising, laceration or lack of perfect apposition of the viscera engaged in the anastomosis is to be scrupulously avoided, as also are all unabsorbable sutures. Drugs, especially tobacco and alcohol, have much to answer for in the pathogenesis of gastro-jejunal ulcer.

Errors in the after-treatment undoubtedly contribute towards the formation of gastro-jejunal ulcer. It is important for the patient to be dieted with great care, to be allowed only soft and non-irritating food at regular and short intervals, and to have a long restful holiday before he returns to work and worry. The slightest recurrence of symptoms demands rest and a return to medical treatment by dieting and the administration of alkalis.

DIAGNOSIS

I believe that gastro-jejunal ulceration is much more common than is generally supposed, and that it should be suspected whenever abdominal pain or "indigestion" follows gastro-jejunostomy.

The diagnosis is not easy, particularly as radiography rarely gives any direct evidence of this form of peptic ulceration—that is to say, it often fails to show a shadow of the ulcer. But it gives valuable hints—generally delay in emptying

through a narrow stoma and uneasy peristalsis in the upper part of the jejunum.

The symptoms are more reliable. They are similar to those of duodenal ulcer, especially hunger pain relieved, perhaps, by food and alkalis, but coming on much earlier than the pain of duodenal ulcer—generally within an hour after food; later the pain becomes more severe and almost continuous; moreover, it is above and to the left of the navel instead of in the right epigastric angle. Tenderness, and perhaps a tumour, are noticed in the same situation. Melæna or occult blood in the stools is very significant if the patient is on a meat-free diet. Wasting and anæmia are usually very marked. Gastro-colic fistula, when present, is clearly indicated by diarrhœa, foul eructations of gas and fæcal vomiting. The early passage per anum of undigested food and the X-ray shadows after a barium meal or enema are generally conclusive.

Occasionally a new or old duodenal ulcer, or more often a gastric ulcer, or carcinoma supervening thereon, may be mistaken for a gastro-jejunal ulcer. In one case I mistook a gastric ulcer upon the lesser curvature, which had developed some 15 years after a gastro-jejunostomy had been performed, for duodenal ulcer. Here the pain and tenderness were naturally above and to the left of the navel, as with gastro-jejunal ulcer. The ulcer was successfully excised.

Chronic cholecystitis, pancreatitis, or recurrent appendicitis may be mistaken for gastro-jejunal ulcer, but in these conditions there is no occult blood in the fæces on a meat-free diet. Moreover, the appendix and other sources of sepsis should be, and are now, usually removed at the first operation.

MEDICAL TREATMENT

The medical treatment of gastro-jejunal ulceration is far more difficult and less successful than that of any other form of peptic ulceration, but it is always worth trying a thorough course of dieting and alkalis, with complete rest in bed. Every possible source of sepsis must be carefully sought and removed. Sometimes medical treatment is satisfactory, but, even if it is not, it makes an excellent preparation for the surgical treatment that often affords the only hope of success. Sometimes blood transfusion is necessary, on one or more occasions, before an operation can be hopefully undertaken.

SURGICAL TREATMENT

1. *For Perforative Peritonitis.*

As a rule, the patient is so ill when he comes for treatment that all that can be done is to close the perforation and drain above the pubis. Medical treatment is then well tried, and, if that fails, a radical operation can be carried out later. Grant Massie[5] studied 36 recorded cases in addition to his own. The large majority (75 per cent.) of the perforating ulcers were jejunal, these being less protected than those at the anastomosis; 22 of the 36 patients died, so that mortality is very high —nearly 60 per cent.

2. *Radical Operation.*[6]

This, owing to extensive adhesions, obscure relations of the affected parts, and the poor condition of the patient may tax the skill, ingenuity and resource of the best surgeon. It is wise to insist on complete rest in bed and careful medical treatment for at least a week before the operation, which may be a difficult and prolonged one. The ideals are to excise the ulcer, provide free drainage of the stomach, and restore as far as possible the normal anatomical and physiological conditions. The preliminary radiographic examination may have shown that nearly all the food leaves the stomach through the pylorus, and at the operation the pylorus and duodenum may be found to be patent, any previously existing ulceration having healed without causing obstruction. In these circumstances the gastro-jejunostomy should be abolished, the ulcer excised, and the opening in the jejunum closed without narrowing its channel. This should also be done when the primary operation has been foolishly performed for gastric symptoms without structural alteration of the stomach or duodenum. Any operation that adds further anatomical or physiological complications is to be avoided. The addition, for instance, of another gastro-jejunostomy in the hope that freer drainage of the stomach may induce the ulcer to heal is doomed to failure. It is far better to excise the ulcer, although this may appear more difficult and dangerous, especially when the gastro-jejunostomy is of the posterior type.

A long, vertical, paramedian incision is made in the epigastrium, extending below the umbilicus. The operation should commence as a rapid exploration of the abdomen, and any primary source of infection which may be discovered, such as a diseased appendix or gall-bladder, should be removed. The stomach, duodenum and stoma should be carefully examined for signs of ulceration and obstruction. Dense adhesions may make this preliminary step difficult, and it is easy to overlook a small ulcer, especially on the posterior surface of the stoma. The stoma is often narrow and sometimes very small. Occasionally it is normal in size, but the jejunum is kinked or twisted by adhesions, so that the food, which has been shown

by the X-rays to leave the stomach in a normal manner, does not pass freely along the jejunum.

When the ulcer has been found, the adhesions should be separated or divided and the affected parts carefully freed, defined and brought forward into the wound. This important step is often tedious and difficult, especially when the ulcer is posterior and invading the pancreas. Opening the lesser peritoneal sac and dividing the posterior parietal peritoneum greatly facilitate the mobilisation. A rubber cushion behind the back helps to bring forward the lumbar spine and makes the dissection easier. Having separated, brought forward and clamped the parts concerned in the anastomosis, the most suitable treatment is more easily determined.

(A) *Simple Excision of the Ulcer.*

If the ulcer is small and not encircling the stoma it is often possible to excise it and to sew up the resulting wound in such a way as to enlarge the stoma or jejunal channel. But in many cases the ulceration may recur unless all the causes of recurrence can be eliminated.

(B) *Abolition of the Stoma plus Excision of the Ulcer.*

If the ulcer is large or encircles the stoma, which is often contracted, it is necessary to excise the ulcerated area (thus detaching the jejunum from the stomach), and occasionally to make a new and better stoma; but if the pylorus and duodenum are healthy and patent, as often happens, it is not necessary to remake the gastro-jejunostomy; it is far better to close the openings in the stomach and jejunum, thus re-establishing the normal anatomy and physiology of the parts.

(C) *Abolition of the Stoma plus Gastro-duodenostomy.*

If the original gastro-jejunostomy was anterior, it is sometimes possible to perform gastro-duodenostomy, making use of the opening left in the anterior wall of the stomach after the excision of the ulcer. The opening in the jejunum is then closed without narrowing the lumen. After this operation, recurrence of ulceration at the stoma is very unlikely, owing to the free admixture of the alkaline duodenal secretions with the gastric juice discharged into the second part of the duodenum. Similarly, when the duodenum is stenosed, after disengaging a posterior gastro-jejunostomy and closing the openings in the stomach and jejunum, a low lateral gastro-duodenostomy is made well away from the scarred or possibly ulcerated part of the duodenum. I have found this method extremely satisfactory. It is easier and better than "Finney's operation" for these cases, and it saves the patient from the more formidable operation of partial gastrectomy.

(D) *Partial Gastrectomy.*

In bad cases, especially when the gastro-jejunal ulcer is recurrent and complicated and when the duodenum is ulcerated, stenosed or embedded in dense adhesions, it is usually wise to perform partial gastrectomy, which then may be no more formidable than a less ambitious operation. It has the additional merit of reducing the amount of the free and corroding hydrochloric acid. In order to avoid adhesions and other difficulties with the duodenum, the stomach is divided well to the left of the pylorus and its distal end is closed; a large cylindrical part of the stomach and the gastro-jejunostomy are isolated, clamped and excised without sacrificing more of the jejunum than is absolutely necessary, so that the opening can be closed transversely without narrowing the lumen. The jejunum, several inches lower down, is then joined to the end of the cardiac remainder of the stomach, preferably in front of the transverse colon.

(E) *Exclusion of Ulcer-bearing Area.*

When restoration of the normal anatomy and physiology is impracticable, and when partial gastrectomy appears too formidable and dangerous, exclusion of the ulcer-bearing area may be more easily and more safely performed. Briefly, the stomach is divided well above the gastro-jejunostomy and far away from the active gastro-jejunal and duodenal ulcers, the distal cut-end of the stomach is closed and the proximal cut-end is joined to the jejunum well below the gastro-jejunal ulcer. The details of this operation are given below under the account of Case I. In such a case, in order to prevent the possibility of retention of bile and pancreatic juice in the duodenum it is worth making an anastomosis between the jejunal loops on either side of the new gastro-jejunostomy.

(F) *Closure of Gastro-jejuno-colic Fistula.*

When there is a gastro-colic fistula, the colon is clamped, detached and closed in two layers without narrowing its lumen. Its site is then covered with omentum, and the radical treatment of the gastro-jejunal ulcer is proceeded with. Mr. Rendle Short[7] states that gastro-jejuno-colic fistula is very serious, and is usually fatal in spite of treatment. I agree with him that it is very serious, but I do not despair about its treatment, having performed a radical operation in six cases with one death. I published details of two cases in 1928.[8]

(G) *Jejunostomy.*

When the subject of gastro-jejunal ulceration and its complications is too ill to stand any radical operation, a jejunostomy should be done under local anæsthesia to give rest to the ulcerated parts, and to feed the patient until he becomes fit to stand a radical operation; but this may not always be necessary. Lord Moynihan[9] mentions one patient who for five months wore a jejunostomy tube, taking no food by mouth; the tube was then removed and the wound closed. The patient was well four years later.

RESULTS OF OPERATIVE TREATMENT

The formidable nature of the radical operations that are necessary for gastro-jejunal ulcer, and the thin, anæmic and exhausted condition of many of the patients requiring it, would lead us to expect a high mortality, but, as a matter of fact, in good hands the mortality is not unduly high. At the Mayo Clinic,[10] in 89 partial gastrectomies for this condition it was only 3.37 per cent. The ultimate results are good, and more than justify the risks of this radical operation, for "complete relief of symptoms follows the operation in more than 85 per cent. of the cases."

From my own experiences of fewer cases I cannot claim such a low mortality, but I firmly believe that a radical operation should be carried out when medical treatment has been well tried and has failed to relieve the distressing symptoms and disabilities generally associated with gastro-jejunal ulceration. It is unwise to delay the operation until the general health has been undermined by long-continued malnutrition and chronic loss of blood.

The following two cases may serve to illustrate some points in my lecture, although it is too early to say what the ultimate results will be.

CASE I.—Gastro-jejunal ulcer: exclusion.

J. F. H., aged 38, a porter. He is a very powerful man who, some eleven years ago, when he was a policeman, perforated a duodenal ulcer. He had the perforation closed, and a gastro-jejunostomy performed at the same time, at the Miller Hospital. He was very ill, and in hospital for over three months, but ultimately recovered and was well for about three years. However, since then he has had much indigestion and has been in several hospitals for long periods, without permanent benefit. He was in Addison Ward under Dr. Hurst for six weeks in August and September, 1930, and was much better for it, but directly he got up the pains and symptoms returned. He was re-admitted on November 15th, 1930. Occult blood was found in the stools. The X-rays showed no delay in emptying the stomach, but there was marked tenderness over the stoma and especially over the duodenal bulb. Dr. Marshall advised operation, because the symptoms of gastro-jejunal ulcer were frequently recurring in spite of careful medical treatment.

Operation, 24th November, 1930. The appendix was inflamed and contained two fecoliths. It was removed and considered to be the primary source of septic infection. The gall-bladder was normal. There were many adhesions about the duodenum, and a large scar indicated the site of an ulcer on the anterior wall half an inch from the pylorus, which was intimately adherent to the pancreas. There was another ulcer on the back wall of the duodenum which penetrated deeply into the pancreas. Duodenal stenosis was obvious. There was also a gastro-jejunal ulcer invading the pancreas about an inch to the left of the pylorus. The stoma was much too high and too near the pylorus; it had contracted so much that it would only admit one finger. Disengagement of the anastomosis was tried, but proved too formidable, and it would also have entailed a gastro-duodenostomy to overcome the pyloric stenosis. For the same reasons, partial gastrectomy appeared too difficult and dangerous. Therefore I decided to exclude the ulcer-bearing area, and divided the stomach well above the gastro-jejunostomy. The distal gastric opening was completely closed, and the proximal opening was joined to the jejunum about 15 inches down from the duodenum. The union was ante-colic and of the Polya-Mayo type, the proximal part of the jejunum being at the greater curvature. The stomach was divided high up in order to lessen the amount of gastric juice and free hydrochloric acid, and thus minimise the effect of these upon the jejunal mucosa.

On December 4th, the patient was transferred back to Addison Ward. Although he had an attack of vomiting, he rapidly improved and went home on December 26th to continue treatment by rest and dieting. At the beginning of February he was able to return to full work as a porter on the Tube railway.

When he came to show himself at my clinical lecture on March 12th he looked and felt quite well, but was still obeying instructions and being careful with his diet, and he had not regained his full weight.

CASE II.—Gastro-jejunal ulcer: excision; disengagement of the gastro-jejunostomy; gastro-duodenostomy.

J. G., aged 30, a locomotive fireman, had for two years (from 1926) suffered severely from typical symptoms and signs of duodenal ulcer. He tried medical treatment during the second year, but

another attack came on in May, 1928, and a fortnight later he was admitted to hospital for thorough investigation.

6th June, 1928. The test-meal showed "definite delay, excess of HCl in resting juice, not later; slight regurgitation."

8th June, 1928. X-ray report: "This patient still has a benign pyloric stenosis as at his last examination a week ago."

Operation, 11th June, 1928. Posterior gastro-jejunostomy was performed; the appendix was not removed.

All went well for a year after the operation, and then flatulence and indigestion became troublesome. Four months ago, the patient had sudden severe pains in the lower abdomen, especially in the left iliac fossa. He stopped work and the pains lasted for two days. A little later, pain developed under the left costal margin, coming on about an hour after meals. He was admitted into a Cottage hospital, where he stopped a month on milk diet. He was told that there was another ulcer, due to adhesions from the previous operation, and that he could be cured by careful dieting.

After he left the Cottage Hospital the patient followed the prescribed diet carefully, but the pain was not relieved, coming on frequently and at irregular intervals, having little or no relation to meals. Later it became almost continuous, keeping him awake at night, so that he could not bear it, and was admitted to Guy's on 10th March, 1931, where I saw him for the first time.

X-ray examination by Dr. Hallett showed duodenal stenosis, but the food passed pretty freely through the stoma, and the crater of an ulcer was seen to the left and just below the stoma. There was no delay in the stomach. Just above and to the left of the umbilicus there was definite tenderness and resistance.

Operation, 16th March, 1931. Right paramedian incision. The duodenum was seen to be much stenosed, due to a large, healed ulcer upon the anterior wall about half an inch from the pylorus. A large ulcerated mass was found in front and to the left of the gastro-jejunostomy; this dented the wall of the stomach and puckered the jejunum below the stoma. The ulcer was intimately adherent to and threatened to perforate the transverse colon. With considerable difficulty the gastro-jejunostomy was isolated, displaying the stomach above and the jejunum below, except at the part where the ulcer was adherent to the transverse colon. In separating this part, an ulcer the size of a florin and a quarter of an inch deep was opened, but it had not quite penetrated the colon. The gastro-jejunostomy was then disengaged and the ulcer was excised. The opening in the stomach was closed with three continuous catgut sutures, and the opening in the jejunum, which was very large, was closed in a transverse manner with two continuous catgut sutures, leaving a fair passage from the proximal to the distal jejunum; then the first part of the duodenum was mobilised and a lateral gastro-duodenostomy was made. The appendix, which was inflamed and contained several calculi, was removed. There was considerable oozing from the region of the transverse meso-colon, therefore a drain of corrugated rubber was inserted and acted freely for some hours. The patient was not very bad after his long and severe operation. His pulse never went above 100. Saline glucose solutions were freely given per rectum.

Comments.—This man's trying occupation as a locomotive fireman appears to have contributed to the formation of the gastro-jejunal ulcer, and it is probable that his septic appendix was the source of septic absorption and infection. I am convinced that it is wise to remove the appendix at the time the short circuit is made for duodenal or gastric ulcer.

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"Surgery and So On"

By P. Papillomax (Failed M.R.C.S.) and D. von Daschund (L.S.A. Almost).

FOREWORD

IN response to innumerable requests the authors above mentioned are compiling a volume which for size and price will appeal to every student and practitioner, and which will revolutionise the teaching of surgery. Their experience among medical students has led the authors to believe that something is lacking in the current text-books, and it is hoped that the volume now approaching completion will fill what is usually termed a long-felt want.

To ensure (financial) success of the book the authors are placing before their prospective readers a specimen chapter in the hope of obtaining encouragement or constructive criticism.

Both authors being of equal merit and having equal experience of the several branches of surgery, some little difficulty was met with as to who should write the various sections into which the work is divided. This obstacle, which at one time threatened the actual conception of the book, was finally overcome by the authors adopting the simple expedient of writing alternate words.

The volume itself will appear bound in red leather enclosing 7,403 pages, and is of such a convenient size as to be transported easily from place to place in any ordinary cabin trunk. Price, 10 guineas.

The authors are indebted to the following for various reasons which it is no business of their readers to investigate: Mrs. Bones, the Guy's Hospital College Catering Co., the Fifty-Shilling Tailors, several colleagues and Duggie Stewart. These are debts which they can never hope to repay.

An introduction will appear in the volume and will be written by Mr. C. Chaplin, Miss B. Nuttall, Mr. Carnera, Mr. G. B. Shaw, Signor Mussolini and Mahatma Gandhi.

SPECIMEN CHAPTER

DEFINITIONS AND AXIOMS

The Diagrams.—These are two in number: (*a*) thoraco-abominable; (*b*) urino-general.

There may be and probably are others, but they do not come within the scope of this volume.

(*a*) The thoraco-abominable diagram shuts off the vowels (or guts) from the heart and lungs (*see* cardino-valvular system); it is composed of flesh and the draught caused by the inspired air causes it to vibrate up and down like a fiddler's elbow. The diagram may become a hernia (diagrammatic rupture), and in spite of popular belief a truss, however well made, affords no relief for the condition. "The only hope of cure lies in the complete extirpation of the diseased structure (diagrammectomy)" (Papillomax).

(*b*) The urino-general diagram is composed of fibrous tissue like a door-mat, and it serves to keep the internal general organs from becoming inextricably mixed up with the external general organs or bacchanalia. Congenital absence of the diagram leads to hopeless confusion, plastic operations and death from suicide.

The Iliaco-Inguinal Tunnel.—This may be direct or indirect, according as to whether it is medial or lateral to the spermatic artery or vein. It is a congenital defect of the abominable wall and so becomes a ready means of exit for the guts (or vowels). Thus is formed a tænia (or rupture), which may become strangled, leading to operation and death.

The Perineum.—This is a complicated membrane whose chief function is to hold up the wormiform appendage and to become inflamed following abominable operations. It must on no account be confused with the peritonei, which are a group of muscles in the back of the calf (*see* Housemaid's Knee).

Inflammation of the Wormiform Appendage.—This may be acute or chronic, and is caused by a foreign body, *e.g.*, a hat-pin, tie-pin, safety-pin or hair-pin (a rarity).

Whitlow.—This is a boil on the head and is very tiresome, almost.

Wren.—A similar condition of the finger and almost as tiresome, nearly.

Percussion.—Caused by a severe blow on the vortex, *e.g.*, by policeman's baton. The patient complains bitterly (among other things) of hæmorrhagic headache. Treatment lies in tying both common carotids. In a series of three cases treated by von Daschund in this manner some significant results were obtained: 50 per cent. of the patients refused treatment and 50 per cent. died before the effects of treatment could be ascertained. "Head injuries are either so trivial that they can be ignored or they are so serious that they are hopeless" (von Daschund).

Colic.—This condition is caused by a frightful pain in the stomach (Leacock), and is due to concurrent scabies dorsalis. It is found in tinkers, tailors, soldiers, sailors, rich men, poor men, beggar men and myopic burglars (traditional). Ligature of the thoracic aorta affords relief.

Convolvulus.—A cauliflower-like growth of the vowels (or guts), causing heaps (hæmorrhoids of the older writers). Treatment consists in operation and death.

Various Veins.—This painful condition of the legs, from which our own profession is not exempt, is an absolute bar to the Services. Treatment: injection of the tortuous arteries with a solution of common salt ($CuSO_4$) in concentrated carbolic acid (H_2SO_4). Not more than a pint should be injected at a sitting, as some patients exhibit an idiosyncrasy ushered in by coma and followed immediately by death. In a series of 3,000 cases so treated by Papillomax all the patients exhibited this phenomenon, and the treatment is enjoying a deservedly widespread popularity.

Tumours.—These are highly malignant lumps found in any tissue in the body, and should be removed so that a diagnosis may be established. Prognosis: invariably fatal.

Trigeminal Bicycles.—Two ovoid bodies found in the bladder which give rise to thrombosis or kinking of the infernal umbilical artery.

Tetany (Synonyms: tabes, lockjaw, old wives' complaint, etc.)—An intensely painful affliction with an invariably fatal termination, the patient dying in great agony. Treatment of any kind merely aggravates the condition, but "the surgeon should not hold his hand on this account; he must do *something*, no matter what; the patient expects it and the relatives demand it" (Fugge).

Regal Calculus (King's Evil).—"Any collection of sand is a rock" (Rudi). Rocks in the kidney have received the imposing title of King's Evil for a reason which is still obscure, as poorer classes of society have been known to contract the disease. Treatment lies in the practice of Rudi's 19-23 policy, which he instituted in 1822; this consists of the passage of gum elastic sounds (not to be confused with soft rubber bougies, which are used to palpate and crush calculi) along the urethræ on alternate Fridays.

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Some Electrical Aids to Dental Surgery

A Paper read before the Guy's Hospital Dental Society by Mr. F. W. Clare.

MR. PRESIDENT and GENTLEMEN,—At the present time surgery and medicine are making an increased use of electrical treatment, and it is possible that dental surgery will take more interest in this branch of healing in the future. Therefore it is thought that a few notes on some of the principles involved would not be out of place.

Ionic Medication is the driving of foreign ions into the body by the passage of a direct current of electricity. This ionic movement is strictly comparable to the changes caused by the passage of current between two electrodes immersed in an aqueous solution of a salt. It is a general view that the solution of a salt in water causes the dissociation of a certain number of its molecules into positively and negatively charged ions. The passage of a current causes the negatively charged ions, known as anions, to move towards the positive electrode, or anode, while the positively charged ions, known as cations, pass towards the negative electrode or cathode. This movement of charged bodies constitutes the current flowing through the solution. The movement of the ions is brought about by repeated interchanges with molecules which are first broken down and then rebuilt.

The metals, and such substances as cocaine and quinine, which readily form salts with acid molecules, are cations, while the acid ions, such as the halogene and salicylic acid, are known as anions.

When passed into the tissues from suitable electrodes, the ions travel through the cells and can act directly upon them, thus allowing more intimate action than surface application.

Necessary apparatus for treatment consists of a source of steady current, at a potential of 20-30 volts, capable of supplying 10 milliamperes, a milliampere being .001 of an ampere. This may conveniently be a small accumulator or dry battery. Use of the mains is not advisable, as a general rule, for elaborate precautions must be taken to prevent any possibility of the patient receiving a dangerous shock. It might even lead to death if the area of contact was large and the full voltage of the mains applied.

This potential is applied to the patient by suitable electrodes, and should be capable of smooth variation from zero up to the maximum. Smooth variation is essential, as any sudden change causes a painful shock. A convenient method of obtaining the voltage variation is to connect a good variable resistance of about 5,000 ohms across the

battery. The electrodes are connected as in Fig. 1.

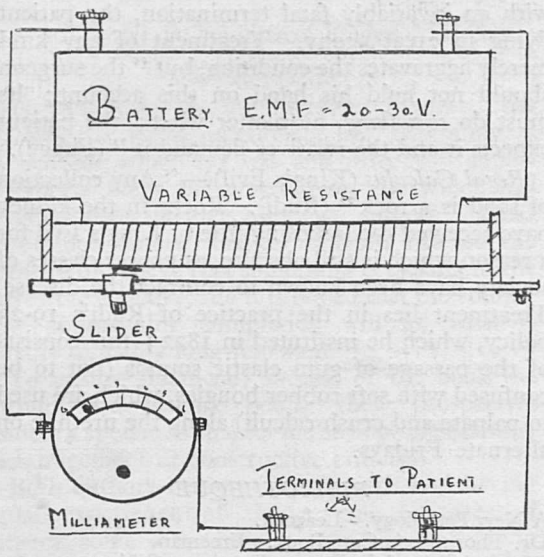

Fig. 1.

Connected in the lead to one of the electrodes is a milliamperemeter, to register the current flowing through the patient. Polarity tests of the electrodes must always be made before treatment, to guard against any error of connection. A simple test consists of the immersion of the two leads in a little salt solution. On the passage of current, bubbles of gas will rise from the electrodes, and the greater number will be given off from the negative wire.

The electrodes applied to the body are known as active and passive, or indifferent. The active electrode, which introduces the curative ion, varies with a different treatment, but it is always small to allow concentrated action. The indifferent, on the other hand, should make contact with a large portion of skin, when the action will be slight. It often consists of a metal plate, covered with lint, soaked in salt solution and strapped to the hand.

Parfitt advises the immersion of the hand and electrode in a basin, containing salt solution, and this method makes sure of obtaining adequate contact. Any rings or other metal articles should be removed, as they cause localisation of action.

At the commencement of the treatment, the electrode should be applied with no current flowing. The current should then be started and slowly increased until the patient's discomfort allows no further increase; 5 milliamperes are usually well tolerated, and often twice this current may be passed before there is any more sensation than a slight tingling. This current causes cations to leave the anode and enter the body, where they travel towards the cathode; the anions similarly pass from the cathode towards the anode. It must be emphasised that any break or sudden alteration in the current will cause a very unpleasant shock and should be guarded against by seeing that all connections are clean and tight, and by only removing an electrode from the patient when no current is flowing.

The dosage is measured in milliampere-minutes, this being the passage of 1 milliampere for 1 minute. If applied over a small area, 100 milliampere-minutes may be sufficient for one treatment, but the dose necessary depends on the size of the area under treatment.

The use of ionic medication has met with success in the treatment of chronic gum infections. The zinc ion is used as a curative agent and is driven in from the anode. Parfitt recommends a cotton wisp, saturated with zinc chloried solution and wrapped round zinc wire, be applied to the pockets. The great disadvantage is the length of time necessary to carry out the treatment efficiently when the condition is at all extensive. Scaling and syringing should, of course, be performed before commencing treatment.

Perhaps the most promising field lies in the domain of root canal sterilisation, or attempted sterilisation. Here the penetrating ions can reach tissue absolutely inaccessible to mechanical cleansing. It has the advantage over strong antiseptics, forced into the root canal, of being definitely controllable and of its action penetrating into the hard tissues, where ordinary antiseptics would have little chance of reaching. A zinc or copper wire may be passed into the root canal as the anode and the canal filled with a solution of zinc or copper chloride. Good contact of the indifferent electrode is necessary or burning may result.

Introduction of the salicylic ion has been tried in the treatment of neuralgia. Some lint, soaked in a weak solution of sodium salicylate and wrapped round a platinum electrode, is used as the cathode, about 5 milliamperes may be applied for some considerable period of time, the active electrode being applied as near the source of pain as possible.

Massey has shown that the passage of 20 milliamperes for one hour causes the iodine ion to penetrate the tissues to a depth of 2 centimetres from the platinum cathode wrapped round with cotton, soaked in a solution of iodine. Thus the penetrating action is very real.

While a steady direct current gives rise to ionisation effects, with little stimulation of nerve or muscle tissue, a slow alternating current provides a powerful stimulus, as anyone who has held

the handles of an ordinary "shocking coil" will admit. Both types of current give rise to heating effects in the tissues, but the change of temperature is quite negligible owing to the small current flowing. If, now, the frequency of an applied alternating current, at a low periodicity, be raised, the stimulation will reach a maximum at a certain frequency; an increase beyond this point will cause the sensation to lessen until, when a frequency in the region of 100,000 cycles per second is reached, there will be no sensation of a current passing at all, if this current be of equal strength to that used in ionisation. The current can now be raised until the heating effect makes itself felt to the patient as a warm sensation.

All tissue intervening between the two applied electrodes will be heated and the rise in temperature of any part will be immensely proportioned to its cross-section. This is the principle of diathermy.

The apparatus needed consists of a generator of high-frequency oscillations, an ampere-meter, to register the current passing and suitable electrodes for application to the patient.

A spark-gap oscillator, similar to that used in wireless telegraphy, and tuned to a frequency of 100,000 cycles per second, is the usual source of current, but lately apparatus employing thermionic valves, as in broadcasting, has been utilised. The ampere-meter is the ordinary instrument for reading oscillatory currents.

The electrodes, which should make good contact with the patient, vary in size. If the two in use are dissimilar, the most intense heating occurs nearer the small electrode, where the current path is more restricted.

An application of this is seen in the diathermy knife; there, one electrode effects contact with a large surface of the body while the other is the knife, with almost point contact. Intense heat is generated in the tissue immediately below the blade, with the result that coagulation occurs and hæmorrhage is prevented.

Good contact of the indifferent electrode is essential, else its effective area of contact will be so reduced as to cause local heating as in the case of the knife itself.

In dental surgery diathermy has been used in the treatment of infected bone, where the warming action dilates the blood-vessels and causes an increased blood supply. The active electrode should make good contact with the mucous membrane and may consist of a german-silver plate swaged on a zinc model in the usual way. It may be kept in position by a block of composition on which the patient bites. The lead from the plate should be insulated by a rubber tube. Gingivectomy and frænectomy could be performed with the diathermy knife, the resulting wound healing up with less trouble than one made by an ordinary scalpel.

In recent years much attention has been focussed on the subject of electromagnetic waves, with the result that the vibrations we call "light" now occupy only about one-sixtieth of the known frequency band of ether vibrations. Fig. 2 shows

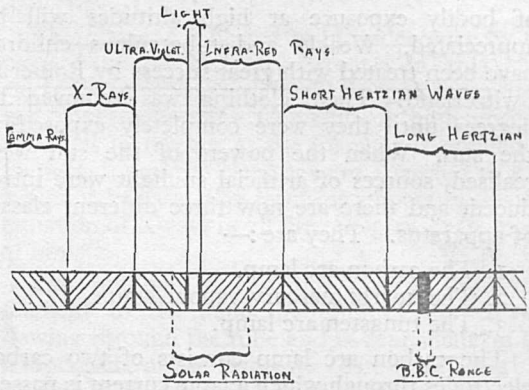

Fig. 2.

the relationship of the various groups of waves, which merge into one another without any clear line of demarcation and which are all propagated at a speed of 300,000,000 metres per second. The character of the radiation depends on the wave-length and hence, inversely, on the frequency. The wave-length ranges from several miles for waves used in wireless communication to .00000001 centimetres for the hard X-rays, differing little from the gamma-radiation of radium.

Below the red end of the luminous spectrum are the infra-red rays, occupying a band nine times as wide as that of light. Below these again are the Hertzian waves, the longer of which are used in wireless communication. Above the violet end of the light spectrum are the ultra-violet rays, occupying a frequency band five times that of light. At a still higher frequency, and therefore shorter wave-length, are the X-rays and the gamma-rays of radium (Fig. 2).

Certain portions of this scale are used in medicine.

From very early times the value of sunlight as a healing and cleansing agent has been realised. The Greeks and Romans practised sun-bathing, while in the Middle Ages sunlight was used to disinfect clothing and bedding from the Plague. Recent research has shown that sunlight, reaching the earth, covers a band of frequencies as shown in Fig. 2. This includes portions of the infra-red and ultra-violet frequencies as well as those of visible light. The proportions of the different

rays vary at different altitudes and under different conditions of the atmosphere. The quantity of ultra-violet radiation depends on the density and purity of the air. Much more will be present in Alpine sunlight than in the smoke-filtered radiations reaching London. In fact, the ultra-violet is almost entirely lacking in the latter case.

Much of the healing power of the sun is thought to lie in the ultra-violet content, and the tonic effect of bodily exposure at high altitudes will be appreciated. Weakly and tuberculous children have been treated with great success by Rollier in Switzerland. Their clothing was removed by degrees until they were completely exposed to the sun. When the powers of the sun were realised, sources of artificial sunlight were introduced, and there are now three different classes of apparatus. They are :—

1. The carbon arc lamp.
2. The quartz mercury-vapour lamp.
3. The tungsten arc lamp.

The carbon arc lamp consists of two carbon electrodes through which a large current is passed. An arc is struck by contact and the electrodes are then automatically kept a certain distance apart. The resulting spectrum is not very rich in ultra-violet radiation, but is probably the nearest approach to sunlight yet available. The proportions of rays are as follows :—

Infra-red rays	..	80 per cent.
Visible rays	..	13 per cent.
Ultra-violet rays	..	7 per cent.

The current consumption of the arc is about 30 amperes.

In the quartz mercury-vapour lamp an arc is struck between two mercury electrodes. The electrodes are encased in a sealed chamber and the current passes by the mercury vapour between the electrodes. This enclosing chamber is made of quartz, both because glass would cut off a large proportion of the ultra-violet light and, also, a highly refractory substance is needed to withstand the intense heat generated.

Cooling may be accomplished either by metal fins attached to the electrodes or by circulating water. The spectrum is rich in ultra violet radiation, but the infra-red is largely lacking. Thus it is often necessary to use a source of infra-red radiation in conjunction with the mercury-vapour lamp to simulate sunlight. The current consumption is about 4 amperes.

The third source is the tungsten arc. The two electrodes are sticks of pure swaged tungsten, arranged as in the carbon arc. Ultra-violet rays are present to a large extent in the resulting radiation and the red and infra-red bands are present in sufficient quantity for most therapeutic purposes.

When infra-red ray treatment is needed, the usual source is a large tungsten filamented lamp filled with inert gases and very similar to the lamps used in domestic lighting. The bulb is placed in a well ventilated hood and the rays are concentrated by suitable specula of polished metal. The resulting spectrum is very rich in red and infra-red radiation, and is known as radiant heat.

The precise action of these various rays on the human body is, at present, a controversial subject. Some authorities ascribe almost miraculous powers to them, while others believe that older methods of treatment can achieve equal, if not better, results.

It is generally admitted, however, that ultra-violet light has a bactericidal action, while general exposure of the body to the rays increases the general resistance. The pigmentation resulting from ultra-violet irradiation is probably protective, but some observers believe that this pigment may be absorbed into the blood-stream and thus affect deep organs. Ultra-violet light causes an erythema if the exposure is continued for sufficient time. This redness of the skin is often used as indication of the dosage. It also makes it necessary to exert care when commencing treatment, as patients vary considerably in their susceptibility, and a dose causing slight erythema in one patient might give rise to desquamation in another.

Infra-red rays are thought to have an analgesic action. They produce an active hyperæmia, and should thus be of use in cases of acute inflammation. Their analgesic action is useful in neuralgia, which is said to be often cured by a short course of treatment.

For ray treatment in dental surgery, small carbon arc lamps are available, the light from which may be directed by means of polished metal specula. The Kromayer, a water-cooled mercury-vapour lamp, has some advantages in local application. Its size is small, the water-cooling prevents burning from contact with the hot metal, and the time of exposure need only be a few seconds. The rays may be applied to any surface of the mouth by means of suitable quartz applicators which transmit the rays with little lateral spreading.

On the Continent and in America much use has been made of ray treatment in dental surgery for very many different conditions, the diagnosis of which is often not explicit. In many of these cases it seems as if similar results might have been obtained by more usual and less tedious methods. Success has, however, attended its use in the treatment of gingivitis where other methods have

failed. The application of the carbon arc after the extraction of teeth is stated to aid healing and lessen the after-pain. Some cases, diagnosed as pyorrhœa, have been treated by local and general irradiation. Cures have been claimed, perhaps more due to the raising of the general resistance than to any local action. Application of the carbon arc holds promise in cases of fracture of the mandible. Sepsis is kept in check and bony union aided. Any pain is also relieved if the observations of these observers are to be credited.

It seems that more research is necessary on cases that have been clearly described before any final judgment is passed on this new form of treatment.

X-rays have been used for a long time and the subject of radiographic diagnosis is one thoroughly explored. The physics of X-ray production and the apparatus employed are, however, rarely alluded to.

X-rays were discovered by Rontgen in 1895. From this date up to the present day innumerable types of X-ray apparatus have been produced. They all depend on the same fundamental principle, for all their diversity of design. This is the bombardment of a metal plate, known as the target, by electrons travelling at a high velocity towards it. The resulting sudden change of velocity causes the generation of electromagnetic waves of extremely short wave-length. Less than 1 per cent. of the kinetic energy of the electrons is transformed into this X-radiation, the remainder being dissipated as heat. Thus the X-ray tube is extremely inefficient. The diversity of design of the different apparatus has been caused through the adoption of various methods to obtain the high-velocity electron stream and to dissipate the unwanted heat liberated at the target, which might become fused.

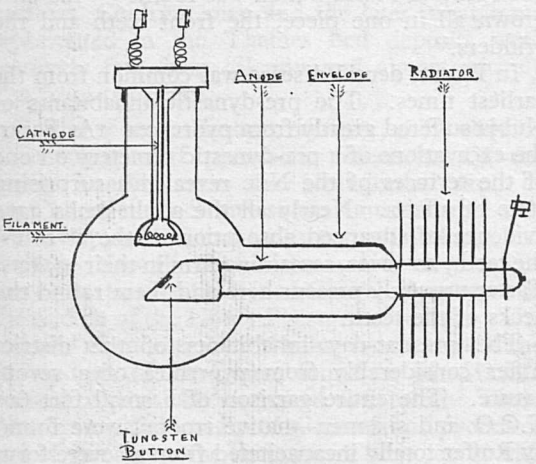

Fig. 3.

The modern tube used in dental radiography is termed an electron tube. By this is meant one in which the source of electrons is a heated wire filament, usually made of tungsten, which is enclosed, together with a metal target or anode, in an envelope exhausted to a very high degree of vacuum. The envelope is usually made of glass, but tubes are now being produced constructed mainly of metal, offering the advantage of robustness (Fig. 3).

The filament is heated to incandescence by the passage of an electric current. In this state electrons, which are negatively charged, are emitted and hover round the filament. A high positive potential in respect to the filament is applied to the target, and the electrons are attracted to it at a high velocity. The resulting impact causes the radiation of X-rays in all directions from the point of impact.

The number of electrons passing from the filament to the anode determines the current flowing through the tube and is dependent on the temperature of the filament. The wave-length of the radiation depends on the potential difference between the two electrodes. The greater the potential the shorter is the wave-length. Length of film exposure is governed by the current flowing through the tube, while the penetrative power of the radiation varies inversely as the wave-length. If the penetrative power be too great, the radiograph will lack contrast.

The application of a negative potential to the anode causes no current to flow as the electron cloud round the filament is repelled. Thus alternating current may be applied to the tube. The half-cycle when the anode is negative in respect to the filament will cause no action, and the tube behaves as if a steady positive potential was being applied.

Care must be taken to cool the target efficiently or it will become incandescent, and the electrons it emits will bombard the filament during this reverse half-cycle when the filament is positive to the anode. This will lead to the early destruction of the tungsten wire. In small tubes the target is a thick copper rod, into which a tungsten button is fused at the point of impact of the electron stream. This rod is connected externally to a finned heat radiator. The potential difference between the anode and cathode in a tube for dental radiography is in the region of 63,000 volts at 10 milliamperes.

A dental equipment consists essentially of the electron tube together with apparatus to generate the current flowing through the tube and that used to heat the filament. Both voltages should be capable of variation so that the correct working

conditions may be obtained. This is necessary, as the source of current is never absolutely constant and the tube itself varies in its working characteristics. In some apparatus control is automatic.

Alternating current of 100-250 volts, as supplied for domestic purposes, is the usual source of energy for the equipment, and this is converted by two transformers to voltages suitable for application to the tube. Meters are usually provided to register the current flowing from cathode to anode and the voltage applied. A refinement, usual in modern equipment, is a time-switch which allows any predetermined exposure to be automatically made.

Methods of supporting the tube and the position of the other apparatus vary greatly with the different manufacturers. Desirable points are :—

1. Steadiness of the tube when in position, together with ease of movement. Any vibration or swinging spoils the definition of the radiograph.

2. Safety devices to prevent contact of the operator or patient with the high tension wire from the transformer to the tube. The tube should be adequately protected with metal or lead glass to prevent extraneous radiations reaching the operator, as repeated doses of X-rays are harmful. The operator should take care never to be directly in front of the tube when it is in action.

3. Accessibility of the components in case of breakdown.

It must be realised that a radiograph is a shadow, and, therefore, the smaller the source of rays the better will be the definition. Fig. 4 shows how

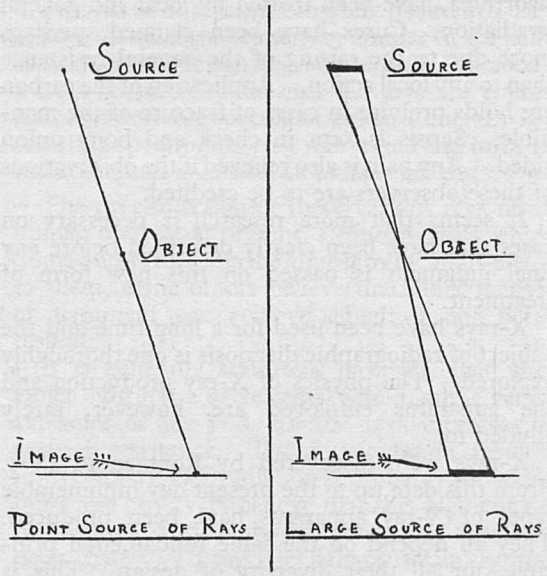

Fig. 4.

a large source, or focal spot, gives rise to distortion and would cause fuzziness in the radiograph. A limit is imposed on the concentration of the electron stream by the intense local heating of the target, which would lead to secondary emission and destruction of the filament.

Some Systemic Factors in Pyorrhœa

A Paper read before the Dental Society, at Guy's Hospital, by G. B. Palmer, Esq., L.D.S., R.C.S.

MR. CHAIRMAN and GENTLEMEN,—Diseases of the supporting structures of the teeth, apparently identical with what is known loosely as "Pyorrhœa Alveolaris," are by no means a recent affliction of civilised man.

From an examination of the remains of early man, and from the manuscripts of the older civilisations of the Mediterranean countries of Europe, Egypt and of China, pyorrhœic infections appear to have been widespread in the past—indeed, pyorrhœa appears to have attained an incidence almost as high as it is to-day, at a period when dental caries was sporadic and confined to certain classes and districts.

The medical treatises of the Greeks and Romans recognised a condition of the mouth which progressed until the teeth became loosened and fell out. The widespread occurrence of large deposits of tartar was commented upon by many writers, both lay and medical. An extreme case is mentioned by Herodotus, who stated that after the battle of Platea a man was found—"his jaws grown all in one piece, the front teeth and the grinders."

In Egypt, dental disease was common from the earliest times. The pre-dynastic inhabitants of Nubia suffered greatly from pyorrhœa. At Farar, the excavations of a pre-dynastic cemetery on one of the terraces of the Nile revealed a surprising state of affairs. Nearly all the adult skulls gave evidence of advanced absorption of the alveolus, the teeth, however, remaining firm in their sockets. Tartar was only present here and there round the necks of the teeth.

The present-day inhabitants of the district suffer considerably from pyorrhœa of a severe nature. The entire garrison of a small fort (an N.C.O. and six men—native troops) were found by Ruffer totally incapacitated from a severe form of pyorrhœa of an ulcerative type.

Skulls of the IVth Dynasty period (of which there is a representative collection in the College of Surgeons' museum) show heavy deposits of tartar. In spite of great absorption of the alveolus the teeth remained firmly implanted in their sockets. In some cases, as in the Eskimo of to-day, they became tilted forward from behind. This usually followed upon one tooth being pushed out of the arch, the remainder becoming tilted forward and often ground horizontally into the alveolus, a new articular surface being formed upon the distal aspect of the tooth and root.

No class of the community was spared; the Pharaohs suffering even more than the peasants. King Amenhotep III had tartar on both upper and lower jaws, an apical abscess under his left lower 2 and a small one over his left upper 3. Manuscripts contain many allusions to dental disease, and indicate that the surgical knowledge of the Egyptians was negligible. They were, however, skilled in pharmacology and compounded many remedies for dental complaints. An element of faith would appear to play a large part in their cures. However, even "glycerini et ac. tan." must yield pride of distastefulness to this preparation.

"To strengthen the teeth:
R. Powder of the fruit of the dum palm.
Verdigris.
Green Lead.
Mix, and the teeth to be rubbed with it."

The fear of extraction of teeth was widespread amongst the ancients. Possibly it was due to the prevalence of some type of ulcerative stomatitis, or infection of the Vincent type.

An examination of the skulls in the museum of the Royal College of Surgeons shows that the Bronze Age men, the men of the long and short barrows, Coldrum man and the later inhabitants represented in the Thames bed deposits were relatively free from calculus and almost entirely free from pyorrhœa.

Earlier races in Europe, however, show obvious manifestations of pyorrhœic infection. Of the earlier hunting races the Neanderthal skull of La Chapelle-aux-Saints shows unmistakable evidence of pyorrhœa and faulty teeth (Baudouin and Keith). Now the date of the man of La Chapelle was at the time of the Third Glacial advance, or in the middle of the Upper Pleistocene period. The remains of another Neanderthal man, those of the young man of La Quina, found by H. Martin, showed teeth thickly encrusted with tartar. There were unmistakable signs of gingivitis and pyorrhœa and of damage to the tissues by a bone toothpick! There was much attrition, but no caries.

Thus we see that diseases of the supporting structures of the teeth appear to have existed from very early times, and to have affected men living under widely different circumstances.

It is extremely probable that, in the course of time, new factors have arisen, and many factors which operate to give rise to pyorrhœic conditions to-day have not operated in the past. Be this as it may, a realisation that pyorrhœa is not a modern affliction greatly helps us to understand the complexity of the problem.

The Chinese as far back as 1500 B.C. recognised six varieties of gingivitis and pyorrhœa. These types were not very clearly differentiated, but from the consideration of their system of medicine each required acupuncture in the appropriate site of election, in order that the correct balance between the principles of vital heat and radical moisture could be restored. Thus only could the patient recover. A logical treatment, indeed, but the underlying considerations were, in our opinion, faulty.

In a short paper it is undesirable to discuss in detail all the various observations—pathological, clinical and bacteriological—which have been made about the various inflammations included under the term "pyorrhœa alveolaris." A rapid survey, however, will help to bring out certain points to which we shall refer later.

Passing over the early, but valuable, observations of Paré and other pioneers, we must first mention the work of Riggs, who, in addition to designing his scalers, gave a rational account of the disease in 1832.

For some time the technical difficulties of the histological investigation were a bar to progress. Once these were overcome, the very difficulties of the research attracted numerous investigators in all parts of the world.

The pathological changes in the various structures involved in the disease, gingival epithelium, ligament of Black, alveolus and periodontal membrane, were gradually elucidated. The process of tartar formation and its relation to leptothrix buccalis were worked out. The results of pyorrhœic infection upon the vitality of the pulp were investigated. The various calcific and fibrotic changes which may take place in a tooth whose supporting tissues, or "hypodont," are affected have been established—and in passing one may add have led to some strange methods of treatment of pyorrhœa. Devitalisation of pyorrhœic teeth on a large scale is advocated, particularly in France and Spain.

The bacteriology of the mouth has been investigated by a host of observers, and even at the present moment our knowledge and data are

far from complete. The earlier work was directed towards isolating a causative organism of pyorrhœa, and many attempts were made to produce satisfactory vaccines.

Films from the normal mouth show a great variety of organisms—cocci, bacilli, spirilla, spirochætes and leptothrices. Pneumococci, which will cause death in a mouse, may live saprophytically in a healthy mouth. Careful search suggests that in every normal mouth, and certainly in every case of pyorrhœa, Vincent's spirochæte and the Bacillus fusiformis are present.

These fuso-spirillary organisms play an important part in the evolution of pyorrhœa. They present a fruitful field of investigation, not the least of the problems being how the anaerobic organisms live and multiply under surface conditions.

Recently, the part played by fuso-spirillary infection has been stressed by Vincent, Vilar Fiol, Levaditi and others, and further attempts at vaccino-therapy have been made. Levaditi has introduced a complex preparation consisting of mixed 15-day cultures of oral staphylococci, streptococci and trepomena microdentium, diluted with saline and put up in ampoules with sodium acetyloxyaminophenylarsenite.

The influence of the saliva in disease has been discussed since early times, and formerly many powerful properties were attributed to it. In 1329, Jacques Ricordi, a monk, was sentenced to perpetual inprisonment by Henri de Chimay, Grand Inquisitor of Carcasonne, for compounding infernal charms with his saliva. The essential evil appears to be no longer secreted in the saliva, but the pH content still attracts many workers. To this we shall refer later.

(To be continued.)

Guy's Hospital Musical and Operatic Society

This Society will give four performances of Gilbert & Sullivan's Comic Opera "Yeomen of the Guard," at the Guildhall School of Music, on Wednesday, Thursday, Friday and Saturday, June 10th, 11th, 12th and 13th, commencing at 8 p.m.

Hospital Information, etc.

Pass List

LONDON UNIVERSITY.

SECOND EXAMINATION.

PART II.

Medical Degrees.

G. T. Balean
C. J. F. Blumenthal
J. A. Brocklebank
G. N. Carrell
H. T. Croudace
W. T. J. Fowler
C. F. Heys
R. C. Hill
T. E. Howell
N. M. Jacoby
J. B. H. McArthur
J. McA. McArthur
L. G. Mackenzie
D. S. Piper
L. I. Sobiya
S. H. Wass
P. R. Wheatley
P. A. Wilkinson
B. L. E. Wong

Papers by Guy's Men

N. Burgess. Syphilis without symptoms in primary and secondary stages. *Urol. and Cut. Rev.*, March, 1931.

H. C. Cameron. Enlarged lymphatic glands in children. *Clin. J.*, 1931, lx, 157.

A. H. Douthwaite. Treatment of rheumatoid arthritis. *Lancet*, 1931, i, 785.

R. A. Greeves. Method of inserting contact glasses. *Lancet*, 1931, i, 752.

W. M. Mollison. Two cases of vertigo persisting after radical operation, cured by injection of alcohol into external semicircular canal. *J. Laryn. and Otol.*, 1931, xlvi, 191.

R. S. Roper. Gonococcal infection of seminal vesicles. *Lancet*, 1931, i, 793.

J. A. Ryle. Study of symptoms. *Lancet*, 1931, i, 737.

L. J. Witts. Inefficacy of liver treatment in essential thrombopenia. *Lancet*, 1931, i, 809.

Change of Address

F. W. Gilbert, M.B., B.S., Anglo-Belgian Boundary Commission, c/o D.M.S.S., Livingstone, N. Rhodesia.

Births

WHITTEN.—On March 15th, 1931, at Epsom, to Kathleen, wife of Maurice G. Whitten, L.D.S., R.C.S. (Eng.)—a daughter.

WILLIAMS.—On March 27th, 1931, at The Cottage, Wellingborough, to Doreen, wife of G. V. L. Williams, L.D.S., R.C.S. (Eng.)—a son.

EDS. { P. M. F. B.
P. V. R.

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GUY'S HOSPITAL

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

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PASSIM

THE art of the publisher in many ways resembles that of the pharmacist, for books, especially medical books, react on the medical student in the same way as drugs react on a sick man, for whereas the student suffers from ignorance, the patient suffers from disease. In the treatment of scientific ignorance books play a part of about equal importance to that played by drugs in the treatment of disease. It has been said of drugs that they sometimes cure, often relieve and always console. Whether books "cure" ignorance depends on the combined intelligence of author and reader, whether they "relieve" it depends on the writer's faculty for clear exposition, but whether they "console" depends entirely on the cunning of the publisher, for the most clumsy words of the most muddle-headed author can be made to comfort the most brainless student if only they are served up to him on decent paper in decent print and between attractive covers. Asclepiades described the function of a prescription as "*curare cito, tuto, et jucund*," but, whereas it rests entirely with the author whether he presents his message "quickly" and "safely," he must rely to a very large extent on his publisher for presenting it "pleasantly."

In this issue of the *Gazette* the publishers set forth their wares, and so that we should in no way bias our readers we have purposely curtailed our Review columns. The reader will find books by a variety of authors on a variety of subjects advertised here by a variety of publishers. The unfortunate student with forty shillings in his pocket and a desire to purchase the best text-book may be excusably bewildered by the formidable array presented for his perusal. Let him remember that publishers cater for all sorts of reader, from the man possessed of the same degree of enthusiasm for attractive bindings as he displays lack of it for the matter which they enclose, to the man who buys a book, covers it with brown paper, and then proceeds laboriously to underline its contents with red ink; they cater alike for the medical dilettante as for the medical debutant. Let him, therefore, scrutinise the advertisements with caution and commonsense, and let him not hesitate to apply to the publishers for their catalogues.

▭

THE winning by E. L. Monkhouse of the Universities' Sabre Championship on Friday last provided the climax to a season upon which the Fencing Club may look back without regret. In Club fixtures it has seldom been possible to fight the full First team, but the Second team, spiced with a few First members, has fought most of the matches and won the greater proportion. In the Inter-Hospitals' Competition Guy's, although deprived by illness and misfortune of any representative in the foil event, succeeded nevertheless through the good offices of Garrus, Morris and Paterson in coming within the narrowest margin of winning the Cup again. Four members of the Club—Wright, Paterson, Pitts and Irish—have fought regularly for the University of London, while in the University of London Tournament Paterson gained first places in foil and sabre and second in epée, and Irish second in sabre. In all, it is a record of which the Club may well be proud, and one which has been made possible solely by the unfailing keenness of the Captain and of every individual member.

THE following appointments have been confirmed by the House Committee :—

House-Physicians—

To Dr. Hurst—Mr. N. S. Plummer.
To Dr. Mutch—Mr. F. H. Stevenson.

House-Surgeons—

To Mr. Steward—Mr. O. Ive.
To Mr. Rowlands—Mr. G. J. Hollis.

Out-Patient Officers—

Mr. J. Chamberlain.
Mr. H. O. Lyne.
Mr. G. V. Steward.
Mr. R. B. Sutcliffe.

Assistant House-Surgeons—

To Mr. Hughes—Mr. C. K. Simpson.
To Mr. Davies-Colley—Mr. R. W. McNabb.
To Mr. Bromley—Mr. A. R. Clarke.
To Mr. Slesinger—Mr. D. W. James.
To Mr. Ogilvie—Mr. K. Biden Steele.

Obstetric Residents—

May 16th—
To Mr. McNair and Mr. Cook—
Mr. W. J. Ferguson.

July 16th—
To Mr. Chapple—Mr. B. Southwell.

House Physician, Children—

Mr. R. O. Payne.

House Physician, Nerves—

Mr. J. B. Schofield.

House-Surgeon—

To Mr. Mollison—Mr. C. J. S. Siggers.

WE note the following recent appointments to the Junior Staff: Mr. R. L. Waterfield to Medical Registrar, Mr. C. R. Freezer to Ear and Throat Registrar, and Mr. J. B. Blaikley to Obstetric Registrar. We offer them our hearty congratulations.

On the Diagnogis of Abdominal Emergencies

A Paper read before the B.M.A., at Oxford, March, 1931, by C. H. Fagge, Esq., M.S.

MR. PRESIDENT and GENTLEMEN,—When addressing a gathering similar to this recently I added my voice to the very considerable volume in which others had expressed their advocacy of more immediate interference in abdominal emergencies. At the suggestion of your President I have chosen for to-day's address the same subject, but I propose to attack it from a slightly different angle. In my judgment, no apology is necessary for the overlap, for, as Moynihan points out,[1] "If there is one department of medicine with which the practitioner should be more familiar with than any other, it is surely that concerned with the recognition of acute emergencies which require prompt treatment for their relief." When speaking at Croydon,[2] I endeavoured to stress the importance of abdominal pain and to assess its diagnostic value. If we accept as the routine explanation of the nature of abdominal pain—the production of tension in a diseased viscus—it is difficult to understand how perforation of a duodenal or gastric ulcer sets up an agony which, in my judgment, in greater than any other which man is called upon to bear. Nor will this explanation account for the exquisite pain of acute pancreatitis which occurs before the stage of peritoneal involvement and can scarcely be due to tension as the pancreas has only a weak connective tissue covering.

In attempting to arrive at a diagnosis of an acute abdominal condition the mode of onset, duration, character and mode of passing off of the pain are of value; again we should discover whether it is better borne in the supine position or relieved by walking.

In most acute abdominal conditions we have in the first few hours little to help us except the pain and possibly a rising pulse, and it was the thesis of my former paper that one should be prepared to operate for the pain alone if conditions or complications for which surgical relief can scarcely be anticipated are to be avoided. That in such instances surgery must be expectant, *i.e.*, prophylactic, and, though such a line of action will occasionally expose its upholder to a charge of an unnecessary operation, judgment by one's peers will readily acquit one of faulty purpose, for had the condition suspected been present, or in process of formation, what may be described as premature intervention would alone ensure the patient's existence.

In this relation, if one is so much in doubt as to hesitate to intervene on account of the pain alone and is in need of a confirmatory indication, one should rely chiefly on the pulse rate; in my opinion a pulse which continues to rise or remains in the region of 100 in an adult two or three hours after admission is a positive indication of great

value, apart from certain modifications which will be pointed out later.

If, therefore, a patient is seized with considerable pain which lasts an hour or two, he should be put to bed and a half-hourly record kept of his pulse rate.

In hospital, the strangeness of his environment, washing, possibly the giving of an enema, may disturb the pulse for the first half-hour or so, but if the condition is not serious the pulse should then fall, or at least not continue to rise.

From the diagnostic point of view, the presence or absence of pyrexia draws a sharp line of differentiation between those lesions which are inflammatory or were of inflammatory origin and those which are mechanical. This, of course, particularly applies to cases of appendicitis after the first few hours, but here a caveat must be entered, for when in appendicitis after some 24-72 hours ileus results from spreading peritonitis, the symptoms are much more like the mechanical type; obstruction is the salient feature and the temperature is usually subnormal, or at the most only slightly raised.

There is no common abdominal emergency in which in the first 24, or even in the first 48, hours a very high temperature occurs, so that if pyrexia is a marked feature of the early hours of illness, one must look elsewhere for the lesion.

The most common pitfall when a sharp rise of pulse and temperature is associated with an abdominal pain—without evidence as to which was first present—is an acute chest condition in which usually pleurisy is the first manifestation of a pneumonia. Here the chief symptom may be pain in the upper abdomen and rigidity is often present, though it is less marked than in an acute intraperitoneal inflammation. The shallow type of breathing, the increased respiration rate, the flushed cheeks with circum-oral pallor will usually give the clue, even if conclusive physical signs are absent; yet I fear there are few surgeons who have not opened the abdomen for an acute chest condition.

Another lesion which does not come under my definition of an abdominal emergency which must always be borne in mind when temperature is high is acute pyelitis.

What has struck me most about acute pyelitis is that its onset does not suggest a lesion of the urinary tract; there may be frequency of and discomfort on micturition, but these signs may be absent, and are often so little in evidence as to be omitted by the patient in her story—for the patient is usually a woman.

In the *British Medical Journal* of 10th January, 1910, page 191, is recorded the case of a lady, aged 30, whom I saw in January, 1909, for a week's illness in which pyrexia, rapid pulse and rigors were associated with severe pain in the right iliac fossa. I was sent for to operate for acute appendicitis. She was $7\frac{1}{2}$ months pregnant; there was some frequency and great tenderness in the right loin in the angle between the last rib and the erector spinæ. My diagnosis of pyelo-nephritis was not received with enthusiasm, and I was urged to operate.

Later events showed that my obstinacy was justified, and the patient's doctor most generously atoned for having tried to coerce me into an operation which I could not justify by his report in the medical press.

The situation of the pain or tenderness or a local swelling may give an important hint as to the localisation of the lesion, *e.g.*, cholecystitis, but, apart from such evidence, in a majority of acute abdominal lesions the first question is that of acute appendicitis.

When the signs and symptoms follow the classical syndrome of Murphy, diagnosis is not difficult—pain diffused over the middle of the abdomen referred to the epigastrium or round the umbilicus, followed by vomiting once or twice. After an hour or two a rise of pulse and temperature—the latter to 99 or 100°F.—with tenderness and rigidity in the right iliac fossa; such evidences cannot admit of doubt as to the necessity of interference. If, as so often happens, the attack begins in the late evening, after 6-12 hours the pain will have passed to the area of tenderness, but guarding of the right lower rectus and tenderness over MacBurney's spot may be discovered at a time when the pain has not yet become referred to the afflicted organ. Hyperæsthesia is very significant of acute distension of the affected organ.

Tenderness and rigidity may be absent when the appendix is in the pelvis, but in this case tenderness in the right iliac fossa is replaced by tenderness on rectal examination.

This should be carried out in every case, though pain, if general or if aroused as the finger is introduced, suggesting that it is due to stretching of the sphincters, has no positive value; also in children it has no value as a subjective sign, but is undertaken to exclude the presence of an abnormal swelling.

It is well known that perforation of a distended appendix is immediately followed by the relief of pain, and it should be borne in mind that a natural cessation of pain due to appendicitis does not occur in this way; therefore, if such an abdominal pain, attributed to appendicitis, ceases

abruptly with a fall of pulse and anxiety, one should be alive to the fact that either the diagnosis of appendicitis is at fault or that the apparent cessation of symptoms is not really to be regarded as a good prognostic sign. I recall seeing a girl of 20 some 35 years ago in this stage; the doctor, an elderly man of considerable insight, declared her to be better since he had sent his junior partner to fetch me, the chief topic of our consultation was the question of a more liberal diet—and the patient was dead within 48 hours.

When attempting to be dogmatic for teaching purposes, I always insist that abdominal pain which begins on the right side and is never median is not symptomatic of acute appendicitis; some renal condition such as pyelitis or of blockage of the ureter by a calculus would be a more probable cause.

The pain of acute colic, whether renal or biliary, does not work itself up to a maximum gradually, but is almost at its maximum from its onset, and, similarly, it ends abruptly. It is usually relieved by pressure such as the weight of a hot bottle, and the patient is restless, often finding relief from walking about rather than by lying with the knees bent, which is the common pose of a patient suffering from an acute intraperitoneal inflammation. The patient suffering from a peritonitis secondary to acute appendicitis is still seen—in this category I do not include, as I really should, the shut-off intra-peritoneal abscess. All stages occur between this and a generalised peritonitis, a rare condition, though the designation is often applied to a diffuse peritonitis in most cases limited antero-superiorly by the great omentum, and therefore best described as subomental; this is relatively common, and in my experience such patients usually recover, provided infection of the small intestine has not passed to the stage of ileus, in which the bowel is distended and atonic.

Diffuse tenderness and rigidity suggest peritonitis, but its extent and severity is better indicated by loss of abdominal movement on respiration. Apart from these local signs, and often before the bed-clothes are removed for an abdominal examination, the facial aspect, hollow-eyed anxiety, the dry tongue and the rapid pulse tell their own tale.

While it is often possible to foretell that a subomental peritonitis exists, it is often less easy to diagnose its cause—appendicitis, salpingitis, diverticulitis of the pelvic colon may easily be mistaken one for the other, though the latter is very rarely seen except in patients over 50, which are usually men.

Mention of salpingitis leads to the consideration of a condition which affords the commonest mistake when a diagnosis of acute appendicitis in a young woman is wrongly made, and that not always in hospital patients.

In this condition the pain and tenderness are more diffused than in appendicitis, though tenderness may be limited to one side only in double salpingitis. But in salpingitis the patient is obviously less ill than a patient with peritonitis of a similar degree secondary to appendicitis would be—in other words, the general condition is less serious than the abdominal signs would suggest. In the very toxic type of acute appendicitis the reverse is met with; the abdominal signs are less marked than the face, and pulse would suggest: here the prognosis is very bad.

In salpingitis the abdomen is usually rigid and distended below, but vomiting is very rare and there is little tendency of the bowels to refuse to act as would be probable if a similar state of affairs were due to appendicitis.

As a rule, the indication for the taking of a swab from the cervix is definite, but occasionally salpingitis is met with when operation has been undertaken for suspected appendicitis, and then the alternatives are to close the abdomen, remove the tubes, or carry out salpingostomy. I would here like to mention several cases of acute appendicitis in which tubal infection results from direct extension from the appendix. As a rule the fimbriated end of the right tube takes part in the formation of an abscess wall, but sometimes involvement occurs from an appendix which has not suppurated. I have seen the left tube also involved three or four times; how this occurs I am not sure, but I think it results from a pelvic peritonitis. In one case bilateral tubo-ovarian abscesses resulted in sterility. I am inclined to think that when the right tube is involved in acute appendicitis it should be removed.

These cases are known to gynæcologists, but I have never read any description of the type of case I have just spoken of in any gynæcological book.

Pneumococcal salpingitis, with or without peritonitis, is often difficult to distinguish from acute appendicitis in small girls.

At Guy's we are led by Dr. Cameron to regard it as part of a pneumococcal septicæmia and to withhold operation in the early days, but I always contend that when in doubt it is better to operate on a pneumococcal peritonitis than to miss an acute appendicitis.

Torsion of pedunculated pelvic tumours may occur at any age; in the opinion of some observers, pregnancy or the puerperal state predispose to this accident, which is most common in semi-solid

cysts, such as ovarian dermoids. It is my belief[3] that the process is usually a slow one—that, as a rule, several minor twists antecede the final rotation of a degree sufficient to produce changes in the cyst; in other words that, as we recognise it now, the condition is one of acute on chronic torsion. We may, later on, be able to recognise the earlier minor lesions; it is stated that rotation of 120° is necessary to interfere with the vitality of the cyst and so to produce symptoms which are, at present, recognisable. Usually infection from the bowel rapidly follows vascular stasis, so that the condition is associated with a variable temperature. Torsion does not usually occur while a predunculated cyst or tumour lies in the pelvis, so that if a tumour is palpable it is usually abdominal. This, with pyrexia, is likely to lead to confusion with an appendicular abscess.

The pelvic conditions already spoken of are likely to give rise to diagnostic doubt in females of all ages; in the young girl tuberculosis of the ileocæcal glands not infrequently mimics a rather subacute type of appendicitis.

I have several times in children met with large vascular glands, obviously infected with pyogenic cocci rather than tubercle in the ileocæcal angle. Here I have removed the appendix, which usually neither externally nor internally suggested a sufficiently acute condition to give rise to the glands, and yet in each case the patient has been relieved of all symptoms.

Acute cholecystitis is not, in my opinion, an emergency. There are cases which end in perforation or gangrene, and endanger life by causing an acute peritonitis, but they cannot be recognised until dangerous complications threaten or probably have occurred. At the same time removal of the gall bladder is usually the best treatment for acute cholecystitis with or without gallstones when it can safely be undertaken, but often, I do not feel justified in doing it in the frequently, fat, flabby female of 50-60 in whom it is met with; the acute inflammation is merely an exacerbation of former chronic inflammation, owing to which the gall-bladder is very adherent and much thickened. The cystic duct is often hidden by a much thickened hard ampulla, and even if the gall-bladder is first emptied, the operation of cholecystectomy presents often mechanical difficulties and dangers which, in my opinion, are not justified. In several such cases, cholecystotomy in the acute stage has been followed by an easy cholecystectomy devoid of risks and complications, whereas in the acute stage it appeared of considerable difficulty and danger. The risk of right pulmonary complications must always be borne in mind.

When I said that acute cholecystitis was not an emergency, I meant that operation need not be undertaken within a few hours. As a rule, the higher level of pain and rigidity and tenderness, the type of patient, the fact that the pain does not move, the previous history of flatulent dyspepsia or of colic, should ensure diagnostic accuracy; but when the question of acute appendicitis as an alternative arises it is wiser to operate even if nothing more curative than cholecystostomy is possible.

I have met with two cases lately in which symptoms of this kind led to a diagnosis of cholecystitis; immediate operation was not considered necessary, but after a day or two was undertaken as the pain did not abate. In each case there was acute pancreatitis with fat necrosis; in the first the gall-bladder looked and felt normal, and it was not till fat necrosis of the mesentery was noticed that the nature of the lesion was suspected. In each case the necrotic area was drained and the patient recovered.

In the paper to which reference has already been made, Moynihan (*loc. supra cit.*) gives his opinion that "acute pancreatitis is the easiest of all acute diseases to be diagnosed," for "the pain is even more acute than in cases of perforation" and "there is always shock." I must confess to being one of those who has usually "diagnosed it as some other less serious form of catastrophe" (*ibid.*).

My own limited experience of acute pancreatitis has not left on my mind so distressful a picture as have cases of duodenal perforation, but admittedly pancreatitis exhibits every degree of acuteness and should be borne in mind whenever acute epigastric abdominal pains are associated with vomiting and collapse.

Further, the pain is referred to the back or loins, the pulse is rapid and feeble, and there is a peculiar purple discolouration of the skin of the abdominal wall or limbs.

I have not gained reliable help from Loewe's test (2 to 3 drops of 1-1000 adrenalin solution instilled into the conjunctiva of one eye; in 15-30 minutes this should cause dilatation of the pupil of eye so treated if pancreatitis is present), but glycosuria may suggest a correct diagnosis which the great increase of diastase would confirm.

I have recently seen a lady, now over 75, whom I first treated in 1913, for a subphrenic abscess following removal of gallstones from the common bile duct by another surgeon; the gall-bladder was thickened and small—he judged that it could not be removed. In October, 1914, I again opened

the common bile duct and removed soft stones and debris. In 1923 she had an attack which suggested subacute intestinal obstruction—vomiting was the chief symptom, and the bowels did not act, though flatus was passed. My notes describe the abdominal pain as very severe, and she became distended. An enema produced a small result, flatus was passed and the distension was slightly reduced. A mass could be felt beneath the umbilicus.

I opened her abdomen on the fifth day of her illness on the diagnosis of obstruction from cancer of the colon; neither small nor large intestine was distended. The palpable mass proved to be infiltrated transverse meso-colon, on which there was fat necrosis and much hæmorrhage. This and the underlying pancreas was freely incised; she was very ill for some days, and death seemed inevitable from sloughing—masses presumably of pancreas and fat being cast off. In two weeks her pulse was 80 and her temperature normal. She was given pancreatic extract for a time, but has not taken it for some years.

She is now in excellent health, eight years after my last operation.

I think I have now reviewed the commonest conditions in which abdominal pain is associated with pyrexia. Of the lesions which are associated with a subnormal temperature the most dramatic is a ruptured ectopic gestation. Though I claim very little knowledge of gynæcology, I have recently given a clinical lecture on this and allied gynæcological emergencies, because I hold strongly that every general surgeon should be acquainted with them for they occur as abdominal emergencies and are usually admitted into the general surgical wards. The clinical picture presented by the rupture of an ectopic gestation is usually unmistakeable.

The main features are anæmia, a rapid thready pulse, air hunger, loss of blood from the uterus; all subsequent to a fairly acute pain in the lower abdomen in a woman, usually from 25-30 years of age, who has not had a child for some time and has missed one or two periods.

Breast changes, uterine enlargement, softening of the cervix and a mass on either side of the posterior vaginal fornix should lead to a certain diagnosis.

When this is done, immediate operation is imperative, but it is often advisable to use means to raise the blood pressure; for this purpose I usually give an intravenous injection of gum during the operation and as soon as the patient returns to bed she is given 500 c.c. of blood.

As is usual in conditions where a single loss of a large amount of blood apparently brings the patient to the brink of the grave, the prognosis after operation for ruptured ectopic gestation is good; in fact, I cannot recall ever having lost a patient.

Among surgical emergencies there is only one other class which is characterised by loss of blood and anæmia—rupture of an abdominal viscus, usually one of the solid organs, most commonly the spleen and less often the liver.

There is usually a history of injury in that region, often abrasions, some pain followed by progressive anæmia and a rising pulse; the association of fracture of the lowest ribs with effusion into the chest on the injured side are additional indications of the locality of the lesion. A falling blood pressure is very helpful, and it should be appreciated that intervention, to be successful, should be premature rather than delayed.

Diagnosis of a rupture of any part of the abdominal intestinal tract is much more difficult; it must really be made upon the evidence afforded by a half-hourly pulse chart.

A patient admitted with a history of a severe blow in the abdomen is put under observation, and, unless pain is severe, no morphia is given and only water by mouth.

Local pain, tenderness, rigidity, may all be caused by contusion of the abdominal wall, but if after two hours the pulse continues to rise or remains over 100 in an adult, it is wiser to operate at once, as soiling of the peritoneum by intestinal contents soon sets up a grave peritonitis. There are two interesting points about such injuries. Firstly, it is not at all clear by what mechanism rupture takes place, and secondly, the immediate effect of rupture is to paralyse the bowel above, so that the margins of the tear are everted and no gross intestinal contents are ejected into the peritoneum.

In males after 20, if we exclude appendicitis, the commonest emergency is perforation of a duodenal or less often of a chronic gastric ulcer; it is also seen in women of the same ages, but not so commonly as in men. Relatively, the frequency of perforation in women is surpassed by many varieties of pelvic emergencies.

Moynihan (*ibid.*) and others have drawn attention to the fact that as perforation occurs with rare exceptions in an ulcer of some duration, there is almost constantly a history indicative of ulcer.

This should be borne in mind by the operator, as from it can be deduced a sign of great utility; when the abdomen is opened and the diagnosis has been in doubt, free fluid, which in the case of a duodenal ulcer is bile-stained, and gas will

indicate the lesion. This is confirmed by touch and the position of the perforation can be felt only owing to the induration round its edge, which induration is indicative of its chronicity. It follows that, when an ulcer cannot be felt, it is most unlikely that one is present.

The symptoms and signs of perforation are usually typical; little difficulty should exist in coming to a correct diagnosis at once. They cannot be more aptly or graphically delineated than in Moynihan's words[1]: "the agony suffered by the patient is almost beyond belief, and is written on every line of a face that speaks of torture. The face is pale, haggard, anxious and appealing, the eyes wide and watchful, the brow and temples bathed in sweat, the hair soaked. The patient struggles for breath in short, panting respirations which are wholly costal, for the diaphragm, being an abdominal muscle, is fixed. Words spoken are jerked out in expiration only; every syllable is part of a deep moan. What strikes every onlooker is that the patient's body is rigid and motionless; no slightest movement dare be attempted. If an endeavour is made to touch the abdomen, the patient's hands are at once lifted in protest and in protection, but the chest and abdomen stay motionless. When examination is made, it is realised at once that the patient is cold, and the temperature will rarely be found more than 95° or 96° F. The abdomen is immobile, and the muscles are taut and rigid; 'hard as a board,' it is said, but if there is anything harder it is the abdomen in this time of catastrophe. A further examination of the abdomen will almost always show an area of greater tenderness and, if possible, of added rigidity over the area involved in stomach or duodenum." You will agree that this description could scarcely be bettered, the choice of words is so perfect that a vivid picture of the stricken patient immediately comes before our mental vision. If I may venture to "paint the lily," though what I shall say almost follows from what I have read, the "short, panting respirations" do not allow of normal oxygenation of the blood, so that the body surface is cyanotic.

Moynihan[1] states that for "the first hour or two" the pulse "is not increased in frequency nor diminished in volume, blood-pressure is not diminished, and in a few cases that we have examined the blood volume is unchanged. There is, therefore, no 'shock.'" He goes on to speak of "initial profound prostration," distinguishing it from "shock," and points out that within two hours the pulse begins to rise.

I cannot disprove or verify from personal observation this distinction, which would necessarily begin by an attempt to define "shock" in terms acceptable both to the physiologist and the clinician. I cannot recall having examined a patient so early after perforation; in the stage when I have seen them they have been moved or have walked to hospital, and the pulse rate is feeble and rapid and the blood-pressure low.

In a typical case of perforation into the general peritoneal cavity further signs should be superfluous. I will, however, refer to one which I have for years investigated, because I was doubtful whether that reliance could be placed upon it which one of my colleagues at an examination expected the candidates to believe. It is the absence of liver dulness—so far as my personal experience goes it is entirely useless. Extravasated duodenal contents trickle into Morison's pouch and so down the right lumbar sulcus, causing pain in the right loin and iliac fossa—thus confusion with appendicitis may arise.

As I have said, acute perforation is usually easy to diagnose, but in the subacute type free escape of gastric contents into the general cavity is prevented by some means, such as plugging of the hole by omentum or by a rapid formation of limiting adhesions, and the course of symptoms is not progressive.

The early signs are of typical suddenness and severity, but within two or three hours are gradually abated. If one is aware of this type of lesion it is not difficult to diagnose, and even if the patient appears well again, the indication for complete investigation and probable operative treatment when convalescent is undeniable.

Typhoid fever has become so rare a disease that operation for perforation of a typhoid ulcer is almost unknown. In years gone by I have several times been called in for this purpose, but have never saved a patient.

A severe hæmorrhage may cause such collapse as to suggest perforation; rigidity, tenderness and pain are absent or much less in evidence in the former.

In 1924 I was called some distance to see a girl of 16 who was regarded as recovering from typhoid as her Widal was positive. She had been seized with abdominal pain and perforation was suspected. By the time I reached her this was easily excluded; my suggestion was that the pain was due to cholecystitis, which, two years later, when the patient was 18, was proved by the removal of her gall-bladder, containing calculi from which bac. paratyphosus B. was obtained.

Thrombosis or embolism of the mesenteric vessels is evidenced by an attack of acute abdominal

pain associated with vomiting; usually the bowels fail to act. If they do act, the motions are often blood-stained; the pulse becomes rapid and the temperature is subnormal. It is scarcely surprising that the abdomen is usually opened on a diagnosis of acute obstruction, though occasionally such symptoms in a fat man of 40-60 with some arterial degeneration may lead to a correct diagnosis.

It appears that usually the primary condition is embolism of the trunk or a main branch of the superior mesenteric artery; thrombosis of the corresponding veins rapidly follows. In most cases the area of bowel involved is not sharply defined, and it may be necessary to remove a much greater extent of bowel than is actually "black." The prognosis is very bad (about 8 per cent. recover).

Poisoning from arsenic and similar gastro-intestinal irritants must be borne in mind when a patient complains of acute abdominal pain with vomiting. I do not recall being faced with this difficulty, but if the possibility were suspected, analysis of the vomit would clear up the question.

Diseases of the cord such as tabes may give rise to gastric and other crises, and vomiting may be so severe in conditions which increase with intra-cranial pressure, such as tumours, as to suggest an abdominal lesion.

There are many emergencies which may be classified under the heading "Acute Intestinal Obstruction," and in the time at my disposal I could scarcely discuss the more important ones; it must be recognised by any surgeon wishing to acquire the art of diagnosis that acute intestinal obstruction is relatively a very rare condition. If the external herniæ are excluded, the rarity is much increased. Apart from a complication of external hernia, it may result from adhesions, bands secondary to some acute intraperitoneal inflammation or to a former laparotomy.

Students guided by text-books which devote as much space to acute intestinal obstruction from impaction of a gall-stone as to matters of far greater clinical importance entirely fail to realise its rarity.

In nearly 30 years of hospital practice I can recall having operated on only one case, and from conversations with others I gather that my experience is not peculiar.

I constantly warn my class that ileus resulting from peritonitis is very prone to be mistaken for mechanical obstruction; the converse never occurs.

When the history, abdominal examination and pulse suggest acute obstruction an enema is given. If a soap enema given by a skilled nurse produces no result, and particularly no flatus, a diagnosis of obstruction is probable. The patient is put on a half-hourly pulse chart, and if doubt still exists a second enema is given. If this fail, immediate operation is undertaken.

There is no condition which puzzles the surgeon more than attacks of acute abdominal pain in babies under one year. The suspicion of intus-susception naturally suggests the necessity of immediate operation; the fear that the condition is gastro-enteritis compels him to wait until his diagnosis is reasonably assured. I do not ask you to place reliance on blood in the stools, for blood indicates strangulation, and this should not be allowed to occur.

My practice for 30 years has been to examine such a baby under an anæsthetic, and if a tumour is felt to proceed with operation for its reduction. I need not say that even this practice is not without its snares; in the last case of this type admitted to my wards nothing abnormal was found, though the history was typical.

Such cases do more than anything else to keep fresh our interest and remind us that, as Moxon said: "We all make mistakes, even the youngest of us."

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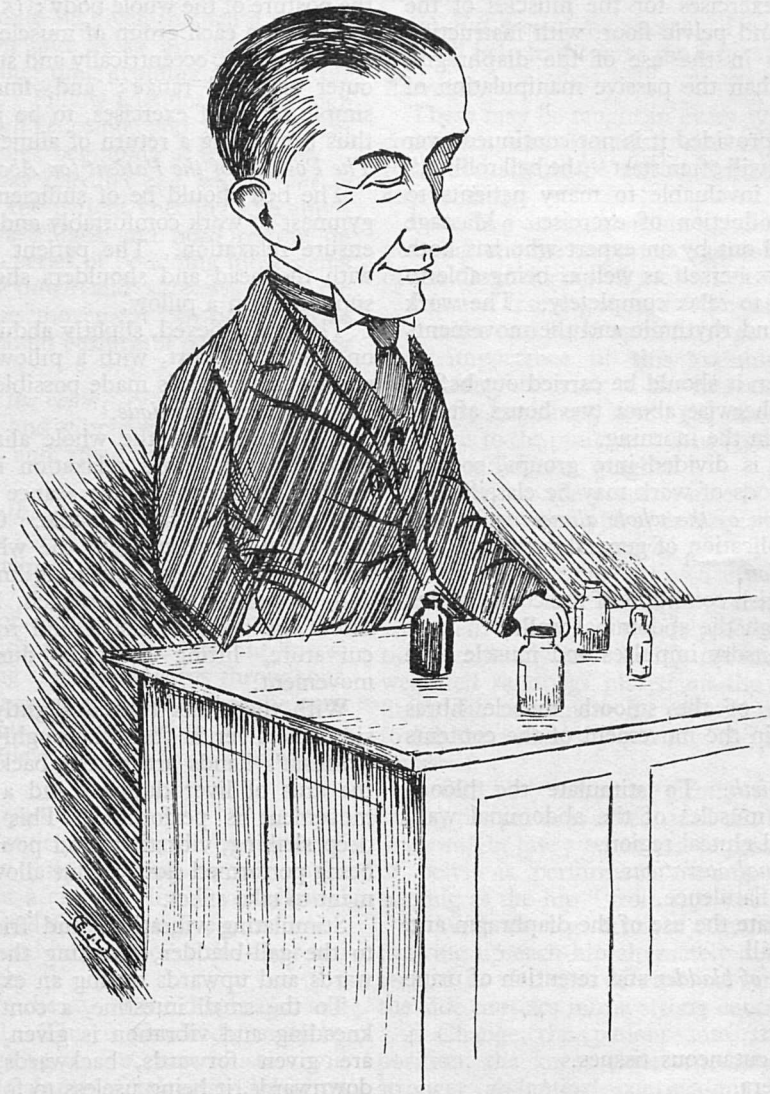
MONUMENTS OF MEDICINE



"N.M.—Multum in Parvo"

Massage and Exercises for the Abdomen

By Miss H. S. Angove

IT may be of interest to readers of the *Gazette* to know what kind of cases respond to massage and exercises, and how this treatment should be carried out. For many years it has been recognised that exercises for the muscles of the abdominal wall and pelvic floor, with instruction and re-education in the use of the diaphragm, are more value than the passive manipulation of massage.

The massage, provided it is not continued over too long a period, will often start "the ball rolling," and therefore is invaluable to many patients to precede the introduction of exercises. Massage should be carried out by an expert who has both the power to relax herself as well as being able to teach the patient to relax completely. The work should be deep and rhythmic and the movements should be slow.

For constipation it should be carried out before breakfast, and otherwise about two hours after a meal, preferably in the morning.

The following is divided into groups, so that the various methods of work may be classified.

(A) *For stimulation of the whole alimentary system* during the application of general massage.

(B) *For constipation.*

(*a*) For a sluggish condition of the colon, which is palpable through the abdominal wall.

(*b*) For lost sensory impulses and muscle tone in the rectum.

(*c*) For spasm of the smooth muscle fibres leading to delay in the movement of the contents of the colon.

(C) *After child-birth.* To stimulate the blood-supply to the muscles of the abdominal wall, pelvic floor and gluteal region.

(D) *After abdominal operations.*

(*a*) To relieve flatulence.

(*b*) To re-educate the use of the diaphragm and the abdominal wall.

(E) *For distension of bladder* and retention of urine due to spasm.

(F) *For fat masses.*

(*a*) In the subcutaneous tissues.

(*b*) In the viscera.

(G) *For cases of rheumatoid arthritis* in which no toxin has been discovered.

Exercises should be given as a routine. They complete the treatment and should be introduced into the scheme as soon as possible.

The Order of Introduction.

(*a*) The teaching of (1) how to relax and (2) how to tense all the muscles; (3) how to breathe, exercising control of upper chest, lateral chest and diaphragm; (4) how to maintain a shortened postural length of the muscles of abdomen and pelvic floor, thus lifting the chest and improving the posture of the whole body; (5) how to localise the work to each group of muscles, working them concentrically, eccentrically and statically in inner, outer and full range; and, finally, to teach a simple series of exercises, to be performed daily, thus preventing a return of ailments.

The Position of the Patient for Abdominal Massage.

The bed should be of sufficient height for the gymnast to work comfortably and wide enough to ensure relaxation. The patient should be lying with the head and shoulders slightly raised and supported on a pillow.

The knees flexed, slightly abducted and resting on a firm support, with a pillow under the feet so that relaxation is made possible.

The Massage Technique.

1. To stimulate the whole alimentary system. First, breathing and relaxation must be taught, so that during the whole seance the abdomen is free and the organs palpable. General stroking in a circular direction to the whole abdomen is given, followed by stimulating kneading, stroking and vibrations to the stomach, being careful to direct the pressure under and round the greater curvature, lifting upwards during the whole movement.

With the trunk turned slightly on to the left side, the liver is then thoroughly kneaded; the gymnast's hands are placed back and front over the area of liver dullness and a slow squeezing movement is performed. This is followed by deep shaking, vibrations and pounding, the latter being performed slowly, thus allowing each movement to take effect.

Stimulating vibrations and frictions are given to the gall-bladder, directing the pressure backwards and upwards during an expiration.

To the small intestine, a continuous stroking, kneading and vibration is given, the movements are given forwards, backwards, upwards and downwards, it being useless to follow any definite course.

To the Colon.

As this so often varies in its position, an X-ray will help to locate it and thus facilitate the work. The two movements which stimulate the organ are kneading and frictions; kneadings are given with the heel of the hand, beginning over the region of the cæcum and altering the direction of

the pressure according to the part worked on; frictions are given with the finger pads, being careful to make the movement deep, slow and continuous. The work is concluded with lumbar side and abdominal vibrations.

(B) *For Constipation.*

1. *For a sluggish condition of the colon.*—Frictions are given, beginning at the iliac flexure and gradually working backwards towards the cæcum; these should be given in such a manner that they press on and break up the hardened contents, at the same time avoiding injury to the walls of the colon. Follow frictions by thorough kneading of the whole colon, and then perform continuous vibrations, beginning at the cæcum.

2. *For lost sensory impulses and muscle tone in the rectum.*—With the patient kneeling, the abdomen resting on the thighs and head resting on arms on the bed, a series of pounding movements are given up and down and sideways over the sacral region. This movement can be taught to the patient, who should perform it daily on getting out of bed.

3. *For spasm of the colon.*—Very slow rhythmic stroking, kneading and vibrations, over its course will relieve spasm and allow a normal action of the bowels.

(C) *After Child-birth.*

Here the work is concentrated into the muscles, back and front, which have become stretched during pregnancy. The hands of the gymnast should be placed on either side of the spine and the movement continued forward, to mid-line of the abdomen, lifting slightly upwards throughout. Kneading and effleurage given briskly are the most effective movements. Kneading to the gluteal region will often relieve the pain from bruised and strained tissues.

After Abdominal Operations.

(*a*) To relieve flatulence, with the body turned slightly to the right, reflex stroking given over the bandage working in a circular direction, followed by fine vibrations, will sometimes give great relief. The movement should be given over the front and back of the stomach.

(*b*) To re-educate the use of the diaphragm and the abdominal wall. This is obtained mainly by exercises, but kneading to the chest muscles will often assist in the training of relaxation which is essential if re-education of the diaphragm is wished for.

Distension of Bladder and Retention of Urine due to Spasm.

Place the hand over the front and upper surfaces of the bladder, and perform a gentle circular rhythmic kneading; follow this by a stationary vibration and reflex stroking. This, with the addition of a slowly-running tap, will often have the desired result.

For Fat Masses in Obesity.

(*a*) *For the subcutaneous tissues.*—With the thumb opposed to the hand and placed on the abdominal wall, a vigorous petrissage kneading is performed. This movement is quick and continuous, and should be followed immediately by activity.

(*b*) *Fat around the viscera.*—Heavy deep kneading will help to disperse the fat.

Exercises.

These may be taught in every type of the above conditions, and, if massage does not precede them, relaxation should be introduced before beginning any scheme.

Breathing instruction should follow relaxation, pointing out the importance of complete freedom of the chest during all movements.

Postural training should follow and, finally, how to localise and build up definite groups of muscles. The importance of this training depends on graduating the work to the increasing tone of the muscles, beginning with the most simple contractions to the more strenuous resistance, obtained by the addition of weights.

To work up the postural tone of the pelvic floor and abdomen the type of exercises in the following order should be employed :—

1. Lying with knees drawn up—fixing a penny between the knees—simple contraction of the abdomen, drawing in strongly, followed by relaxation—gradually introducing resistance by varying weighted sandbags placed on the abdomen, and finish the movement by encouraging the patient to lift the weight by pushing the abdominal wall upwards.

2. Still with the penny firmly held between the knees, the pelvis is lifted until the body is held in one straight line; when this is possible, a rotation of pelvis is performed, turning "without any sagging at the hip" from side to side.

3. With the legs straight out, penny still held, drawing up each hip alternately and holding for a second at the end of each movement throwing the side muscles into a strong contraction.

4. Change the patient into the knees-chest position, the knees close together, and continue stronger abdominal contractions by lifting the abdomen away from the thighs.

5. Sitting first on a flat chair and then on one in which the seat is convex, and teach the patient to lift the perineum and hold it free from the seat.

6. Sitting, bending the body forward, curling it up until the head is resting on the knees, then gradually uncurling, pushing the lumbar spine out during the first part of the movement.

7. Standing with arms forward and hands resting on the back of a high chair, the penny between knees, raise on toes followed by deep knee-bending until the knees rest on the chest, then stretching up until the whole trunk is thoroughly extended and all the muscles on guard.

8. Careful instruction in how to maintain the correct posture of the trunk in all daily occupation, and at the same time maintain an easy poise throughout life.

Exercises require careful instruction to prevent faults in the beginning. These described should be introduced into a simple double-sided scheme of work, thus preventing undue fatigue of any one group of muscles.

The addition of graduated music will tend to encourage rhythm and enjoyment. Provided the first few lessons are continuous, it is not necessary to see the patient more than twice or three times a week, and later once a month, to adjust the strength of the scheme of work.

While massage is employed, visits should be daily, and later three times a week.

Annual General Meeting of the Guy's Hospital Massage and Actino-Therapeutic Association

THE 12th Annual General Meeting of Guy's Hospital Massage and Actino-Therapeutic Association was held in the Anatomical Theatre on Saturday, February 14th, 1931, at 2.15 p.m. There were 200 members present.

The Matron gave the members a very hearty welcome, and said that this time they must give the Honorary Secretary a special welcome as it was her birthday, and asked her acceptance of a bunch of tulips.

The Hon. Secretary expressed her delight and thanks.

The Matron then introduced Miss Grafton as the Chairman for the afternoon.

Miss Grafton proposed that the Minutes having been circulated be taken as read. They were confirmed and signed.

EXTRACTS FROM THE REPORT OF THE CHAIRMAN OF THE ASSOCIATION

This is the 13th Annual Re-union and the 12th General Meeting of the Association.

Membership.—There are 445 members; 27 have been enrolled during 1930.

The following have married.—Miss G. Hutley (Mrs. Upson), Miss Brighouse (Mrs. Williams), Miss Mason (Mrs. Day), Miss Price (Mrs. Worth), Miss Dickson (Mrs. Storrs Fox). Miss England is being married at 2.30 to-day, and I would like you all to join with me in sending her congratulations from this meeting. She is marrying Mr. Wootten in South Africa.

Births.—Mrs. Davis, one of our very early members, tells me that she has just received her second daughter. And Mrs. Fyson has her long-waited-for son.

As the result of my request for £50 for a walking machine, I have to announce the sum of £18.

This is a beginning, but not quite enough yet. We want a vaulting-horse. For this, the students in training are trying to collect, but it is a slow process.

SPORT AND AMUSEMENTS

Dance.—A successful dance was held by the students of the Massage and Electrical Departments last February at the Women's Service Hall, Westminster. A large number of guests were present, and we were all delighted to see Matron arrive later in the evening and were glad she was able to spend so much time with us. A Paul Jones was enjoyed by everyone, and helped to make the evening very jolly.

Gymnastics and Dancing.—During the past year the gymnastics and dancing have improved considerably, and everyone has been keen and eager to learn. The introduction of "posture" classes for patients has proved successful, as results have shown.

Netball Report.—The netball this season has been successful and the players keen. Many matches were arranged, but a number of them had to be scratched owing to the weather. However, we have won all the matches we have played, which is very satisfactory.

Hockey.—The weather this season has been a great hindrance to hockey, and a number of practice games and matches had to be scratched. The team itself shows great promise, and, with more practice and the coaching that Miss Beattie very kindly gives, we are hoping to have some better results during the latter part of the season. The only two matches we have been able to play were lost.

Swimming.—Swimming has been very popular during the year, though we were unfortunate in

only being able to arrange one match, which was against Croham Hurst School and which we lost. The Massage Team competed for the "Hogg Cup" and were successful once more, and so retain it for another year. Miss Hogg very kindly presented a replica of the Cup to each member of the team, which gave great joy.

MASSAGE DEPARTMENT

Statistics for 1930 again show an increase in the number of patients admitted both from Wards and Out-patients.

STATISTICS

	1929	1930
New Cases Admitted—		
Out-patients	2,319	2,402
In-patients	731	762
	3,050	3,164
Attendances—		
Out-patients for Massage ..	31,741	34,939
Out-patients for Exercises ..	21,513	22,625
Wards (Massage and Movements)	12,441	11,092
	65,695	68,656
Number of Treatments Given—		
Massage	31,741	34,939
Exercises	21,513	22,625
Wards	12,441	11,092
Whirlpool	31,644	33,247
Paraffin Wax	1,369	2,445
	98,708	104,348
Daily Average of Treatments—		
300 Working Days	329.3	347.82

The Paraffin Bath has been working throughout the year, and appears to give much relief in painful joint conditions.

Dr. Douthwaite has installed "The Apneu Inhaling Apparatus" for the treatment of asthma and chronic chest conditions. As this treatment is not beyond the means of the ordinary patient, the installation may prove a great help to many throughout the year.

The Training School.—There were 58 entries for the Conjoint Training during 1930; nine withdrew or were considered unsuitable. Two students holding the Massage Certificate were admitted to complete the Swedish Remedial Section, and five to take out the training for the Teachers' Diploma.

Post-Graduates.—The authorities of the Dartford Physical Training College decided to withdraw their students, as the Dartford Hospital authorities have made it possible for the students to obtain the necessary practical work, and so the journey to Guy's has stopped.

The Anstey Physical Training College.—Students continue to be entered, and 18 arrived this year. They do all the work of the Department during the summer holidays, and appear thoroughly to enjoy themselves.

Liverpool Physical Training College.—Five students were admitted during August and September for practical work. Four qualified masseuses took advantage of the Post-Graduate Course to refresh their methods.

The Examination.—41 students completed their training and gained the certificate of the Chartered Society of Massage and Medical Gymnastics.

Miss Cowing gained distinction in the November examination, and will receive the Raphael Silver Gilt Medal which is presented by the Hospital.

Miss Tennyson-Smith and Miss Wingrave gained over 70 per cent., and the top places in all England below distinction in the same examination. There are now 69 students in training and 30 enrolled to enter in March, 1931.

The Staff.—Miss Prosser, who has been on the Staff for ten years, left the Hospital on her appointment as Sister-in-Charge of the Massage Department of the Middlesex Hospital. Miss Prosser's work and teaching powers are well known to you all, and I am sure you will all join with me in wishing her every success in her new work. Miss Blomfield, who was appointed in January, has filled this vacancy, and Miss Secretan has been appointed to replace Miss Blomfield.

The following have left the Hospital :—

Miss Casely gained the Teacher's Certificate, and returned to her home in S. Australia.

Miss Kingsnoth was appointed to Chailey to replace Miss Randall, who filled a vacancy at the Oswestry Orthopædic Hospital.

Miss Secretan gained the Teacher's Diploma and was appointed temporarily to the Manchester Royal Infirmary.

Miss Evans, Miss Orme and Miss Bain filled these vacancies, and are training for the Teacher's Diploma.

Miss Arnold left on her appointment to a school in Nottingham as Educational Gymnast, and Miss Beattie from the Anstey Physical Training College was appointed to this vacancy.

Some Systemic Factors in Pyorrhœa

A Paper read before the Dental Society, at Guy's Hospital, by G. B. Palmer, Esq., L.D.S., R.C.S.

(*Continued*)

The question of diet has recently been the subject of many investigations, and the effects of diets deficient in mineral and other essential constituents, acting over a number of generations, was found to play an important part in the ætiology of pyorrhœa.

With such a mass of data as has been collected by histologists, pathologists, bacteriologists, biochemists and clinicians, it is not surprising that the element of physiological commonsense has been rather obscured, and each observer has stressed the importance of his own special investigations.

The almost invariable association between pyorrhœa alveolaris and a varying degree of tartar formation, produced either by action of the leptothrix buccalis or by means of some enzyme in the desquamated epithelium of the pocket, suggested that here was a case of cause and effect. With tartar present, the irritation produced by food stagnation and increase in certain elements of the bacteriological inhabitants of the mouth would tend to keep up a vicious circle. With any irregularity of teeth, hypertrophy of gum, such as with a mouth-breather's gingivitis, faulty diet and local hyperæsthesia leading to avoidance of mastication, a rapid increase of calculus would take place and the progress of the disease would be assured.

The histological changes in the tissues in the established disease have been carefully worked out. The exact order of appearance of the changes is open to question. A concensus of sound opinions suggests that epithelial hypertrophy over the external layers of the gingivæ and the lining of the pocket are the first observable signs. Changes may be summarised briefly :—

1. Hyperæmia of the gums, proliferation of epithelium of the interdental papillæ, gingival margin and gingival trough.

2. The epithelial layer which joins the Nasmyth's membrane at the bottom of the pocket proliferates, grows downwards and splits, the pocket always having its epithelial lining intact.

3. Changes take place in the cells of the gingival epithelium, there is a round-celled infiltration and the underlying bone undergoes halisteresis. Certain writers say that the halisteresis is the earliest observed change.

4. Infection by mouth organisms, with or without suppuration, involvement of the periodontal membrane and exfoliation of the tooth.

Such are the observed changes which actually takes place once the disease is established, and the interpretation of them by a large number of writers. The general outlines of this theory of local origin are given, with excellent histological sections, by W. Warwick James and Dr. Councell in their paper on " The Initial Lesions in so-called Pyorrhœa Alveolaris."

However, treatment of the condition along sound rational lines, by removal of " the " cause and combating the secondary infection, even in the early stages, gives varying results. As Vincent has cynically remarked : " There are two types of pyorrhœa—(1) That which can be cured ; (2) That which cannot."

It would appear, then, that either there are other factors besides secondary infection and tartar and pocket formation, or that, in addition to these factors, there are two or more conditions, or groups of conditions, included under the same term, " pyorrhœa alveolaris."

Vincent regards most of the cases in his first group (which he defines more accurately and scientifically in other papers) as not being true pyorrhœa at all. In this group of persons, in whom, owing to a multitude of local causes, much tartar forms readily, there are hypertrophied gums, food stagnation, and lack of oral hygiene, which, with the modern diet, cannot be carried out naturally by the majority. They present signs of gingivitis at an early age. Usually between 20 and 25, either because of some local tenderness such as a carious tooth causing them to avoid mastication, calculus forms rapidly ; an intercurrent illness gives the normal mouth organisms a chance to multiply. There is foul taste in the mornings, the gums bleed readily, the breath smells, and, with increasing tenderness, hard food is avoided.

Thorough scaling, atomisation and judicious antiseptic treatment cause rapid amelioration of the condition. Later a gingivectomy may be performed, any traumatic bite corrected, and careful instructions in oral hygiene and dental dietetics given. The condition will, in all probability, be arrested.

The use of the atomiser as an adjunct to oral hygiene seems to have been rather neglected. It is far less likely to damage the gingivæ than floss silk, which, used for a long time by inexpert hands, must produce much damage. In Norway the " atomiseur " has become very popular, and a form suitable for home use is on the market. In Oslo and other large towns a very large proportion of the educated public use them.

Vincent regards the type of pyorrhœa that we have just described as a false pyorrhœa, and with him many others agree, describing it as an inflammation of the gingival tissues as a result of neglect and faulty alimentation.

What of the other types of pyorrhœa? Bearing in mind the dictum of Rousseau-Decelle, that "in considering a case to be pyorrhœa one must first exclude all local infective conditions of the gums proper, and of the underlying bone," let us consider the various pathological entities comprising the group of true pyorrhœas :—

There is absorption of underlying bone; the gingivæ are hyperæmia, the epithelium is proliferated. There is an itching or other sensation whereby the patient is conscious of his gums. There may be a foul taste at times, though little or no active suppuration is seen. Smears show great increase in the fuso-spirillary element. Bacillus fusiformis and Vincent's spirochætes are present. There may be little or no tartar.

Now let us consider a few conditions of the body as a whole which may affect the supporting structure of the teeth. In many severe toxic conditions and under conditions of dietary deficiency, the oral tissues are affected in common with the rest of the body. In other cases the supporting structures of the teeth are affected out of all proportion to the extent of the systemic disease.

Familiar examples of these oral complications are seen in cases of poisoning or intolerance of drugs or other substances, and in cases of vitamin deficiency. Alveolus, gingivæ, periodontal membrane and teeth themselves are affected in varying degrees according to the various substances producing the disturbance.

For example, mercury causes catarrhal inflammation of the gingivæ, passing to ulceration, intense salivation and loosening of the teeth: potassium iodide, in addition to bringing about similar changes, causes staining of the dentine, and, if intoxication is prolonged, the appearance of multiple carious cavities. Arsenic, in the form of N.A.B., predisposes to necrosis of the jaws if some apical infection is present. M. Denarié has collected a series of cases in which N.A.B., pushed to the limit of tolerance, has apparently brought about a stomatitis of fuso-spirillary type. To this we shall return later.

The condition of the mouth in scurvy is well known. In leukæmia, and to a lesser degree in lymphadenoma, there is hyperæmia and, later, secondary infection of the gingival tissues. Ruffe has described in detail two cases of leukæmic stomatitis. The oral changes in leukæmia are so constant as to be a valuable diagnostic aid. In purpura, pernicious, aplastic and splenic anæmia a greater or lesser degree of gingivitis occurs, and pyorrhœic processes are greatly accelerated. There are many other conditions which bring about changes in the mouth, but the examples we have just considered and those which follow will serve to remind you of the diversity of toxic and other substances affecting the body, which have their repercussions on the oral tissues. Upon reflection, there is nothing remarkable in this, and it would be strange, in various states of chronic ill-health, or in thoroughly diseased individuals, if the gingival structure escaped from pathological modification when most of the other organs of the body and mind were upset.

There are three groups of conditions which we will single out for special mention. It is extremely difficult to assess factors whose sole effect may be to change the reaction of a tissue without visible signs of that change. In those which we are about to consider more definite effects upon the supporting structures of the teeth can be traced. They fall under three headings :—

1. Certain endocrine disturbances.
2. Focal sepsis.
3. Mental and other states producing sluggish or stuporous condition. Asthenic states.

In considering endocrine disturbances, gross lesions can be neglected; we can confine our attention to changes compatible with an average healthy life.

In many women after oophorectomy, pyorrhœa becomes established within a year or so in what was previously a healthy mouth. This may be in part due to the shock of operation, which is a recognised excitant of latent pyorrhœa. It has been asserted by various French writers that many women show a slight transient interstitial gingivitis at the time of the periods; certainly many acture gingivites begin then.

Pyorrhœa developing at the time of menopause has more than a chance relationship, for in women who have an early menopause, pyorrhœa very often begins at that time.

Young women, following pregnancy, sometimes develop obesity and other symptoms attributed to "ovarian deficiency." A similar condition may develop spontaneously in married childless women. These women may complain of foul taste in the mouth and an intense irritation, which is augmented about the time of the usually scanty periods. Clinically hyperæmia, some loss of alveolus and increase in fuso-spirillary content and cocci are seen.

Thyroid deficiency leads to hypertrophy of the gums, which may predispose to pyorrhœa, which may be of Vincent's first type and due to the favourable conditions for tartar formation, or may be a true pyorrhœa.

Diabetes.—Gingivitis and stomatitis in association with diabetes is a well-recognised condition. In severe cases, verging on coma, a stomatitis rapidly develops, only to clear up to a large extent with correction of the metabolism. This occurs even in the absence of local treatment, apart from cleansing. Active pyorrhœa is also seen amongst diabetics, and is of a characteristic nature; indeed, J. B. Williams claims that he can diagnose the diabetic from the mouth picture.

As all diabetic patients undergo a routine dental inspection of a most thorough nature, it may be open to question whether there is really a higher incidence of the disease amongst them than amongst non-diabetics in an equivalent state of health.

There are, however, certain characteristics of diabetic pyorrhœa which appear to vary in intensity with the progress of the disease. An extreme case of this involvement of the whole mouth was seen in a diabetic girl of 18, now attending at Eye Out-patients. At the age of 13 her diabetes became aggravated, and an intractable gingivitis began. This rapidly became worse, the gums were very hyperæmic and tender, the teeth became loose in both upper and lower jaws. Local treatment being of no avail, the mouth was cleared.

In a typical diabetic pyorrhœa there is a considerable degree of alveolar absorption—out of proportion to the gingival involvement. In cases of established pyorrhœa, aggravation of the diabetic condition may lead to loosening of teeth and the mouth being involved as a whole. The teeth may subsequently tighten up considerably with improvement in the general condition.

Dental diseases in the diabetic are of considerable interest from the point of view of Broderick's theories. Stomatitis, alveolar absorption and pyorrhœa are considerably more common in diabetics than multiple carious cavities. Caries in the diabetic certainly seems to be a rapid process, but usually picks out single teeth here and there all over the mouth. The degree of attrition is often considerable. In a patient aged 20 suffering from diabetes there was a degree of attrition rarely seen in a man under 50. Even considering brancakes as a factor, the teeth must have been poorly calcified.

Broderick's theory, as summarised by himself in a recent paper, may be stated briefly:—"Any cause giving rise to an acidosis, actual or latent, predisposes to caries; any cause giving rise to an alkalosis, actual or latent, predisposes to pyorrhœa." Now in diabetes there is a marked ketosis; there are probably other factors involved, but, in the face of this apparent contradiction of the theory, we can consider a few recent observations which oppose Broderick's assertions. The question of salivary pH is much stressed by Broderick, and recent work in pH values of the saliva in regard to pyorrhœa and caries has brought out several points. At the International Congress of Stomatology in September of last year Bergamini stated emphatically that caries was by no means dependent on an acid saliva. Figures (Hulin and Oppenot) show that, in a series of 12 representative cases of persons with multiple caries taken from some hundreds of observations, six were of pH value of under 6.7, or frankly acid, five varied around the point of neutrality (7.1), and one was described as definitely alkali (7.7). These figures are the mean of the individual's diurnal variation; figures from persons with pyorrhœa, however, show all to have been on the alkaline side. These being healthy persons, there were apparently no diabetic cases.

A partial explanation of these discrepancies, if the work can be trusted, is given by the following observation: that the pH at the site of suppuration from streptococci and staphylococci is found to be higher than that of the surrounding healthy areas, the zone of inflammation being midway between the two.

Focal Sepsis.—The teeth have been frequently incriminated as foci of infection contributory to, or responsible for, lesions in other parts of the body. The possibility that the reverse may be true and foci elsewhere may cause dental disturbances is not considered sufficiently often.

Vincent has recently called attention to the part played by body foci, especially the intestinal tract, in the production of pyorrhœic conditions. Experiments with rats show that, if they are fed on a carbohydrate diet free from all essential vitamins, peristalsis is seriously interfered with, and ceases. If bread (Allinson's, for example) containing whole grain is placed in their cages and they can crawl to get it and eat it, rapid recovery takes place and bowel motions become normal.

Adult persons with a strong tendency to rheumatic pains can often, by rigid limiting of protein intake of the diet, and a supply of wholemeal breads, fruits, etc., keep themselves free from symptoms. A temporary break caused, say, by a month's holiday on the Continent, away from the usual food, brings about an onset of joint pains and of intestinal delay. Gastro-intestinal stasis may have a big effect in the development of pyorrhœa. Many of you have noticed how irregularity in the bowels for any length of time causes irritability of the gums. Vincent quotes two cases in which there was close connection between intestinal disturbance and pyorrhœa (in one case there was operative interference).

Mental Disorder.—Many dementia præcox patients and persons in institutions who cease to

take interest in their surroundings show great tendency to pyorrhœa. Their mouths, from super-added neglect, are often extremely foul.

Morphinomaniacs may develop multiple carious cavities.

Severe abdominal operations are sometimes followed by a rapid onset of pyorrhœa.

The observation that rheumatoid arthritis is often preceded by pyorrhœa is responsible for the suggestion that the two are but manifestations of the same condition. A person with a rheumatic diathesis may develop pyorrhœa as the principal manifestation. This implies an analogy between the tooth socket and the joint, a favourite point amongst Continental writers. Conditions seen in scurvy are regarded as further illustration of the theory. You may take it for what it is worth, and, in any case, proof either way is extremely difficult.

Deficiencies in mineral and vitamin content of the diet may increase susceptibility to pyorrhœa in many ways. They may act by bringing about scorbutic changes, favouring tartar and pocket formation, which, by impeding healthy function, will predispose to infection. They may act in virtue of absence of an anti-infective vitamin; they may act through the mother, as Hess has shown in his observations on breast-fed children of New York negro women. The diet may be deficient in failing to provoke a sufficient salivary flow as, for example, when a meal concludes with a succession of sweet dishes.

A considerable amount of inert fibrous material is essential for the well-being of the mouth and gastro-intestinal tract. In the mouth, by its passage over the gums, it removes the desquamating epithelium (which may be responsible for tartar formation); incipient calculus is removed, and by the exercise entailed a good blood supply to the part is ensured.

The influence of function in determining the progress of pyorrhœa cannot be over-estimated. The 4th Dynasty Egyptian fellaheen and soldiers fed largely on coarse millet bread, which entailed considerable masticatory effort. Four pounds of bread, supplemented with vegetables and, perhaps, fish, fowl or meat, was the usual daily allowance. In spite of great loss of alveolus and much calculus, the teeth remained firm until three-quarters of the attachment had been lost. Under modern conditions, when any tenderness is felt the patient takes refuge in a softer diet. Tenderness and turgidity increasing, gruels and slop foods are resorted to, and, the vicious circle established, the pyorrhœic process becomes rapidly worse.

A certain degree of alveolysis is physiological after the age of 55. Certain authors have therefore explained the initial lesion in pyorrhœa as being a "precocious senility." This is merely giving it another name.

On theoretical grounds it may be a local anaphylactic reaction to a food-protein to which the person is sensitised; Ch. Hulin has seriously advocated this, but his work awaits confirmation.

Can the fuso-spirillary infections be provoked, or in any way influenced, by systemic factors? Two observations strongly support this. During the war the prolonged exposure on a poor diet and under bad sanitary conditions led to outbreaks of stomatitis amongst the garrisons of isolated Turkish forts in Arabia. Similar conditions occurred amongst other troops. Recently cases of fuso-spirillary stomatitis occurring amongst persons overdosed with N.A.B. have been recorded.

And now to conclude. We have seen that diseases of the supporting tissues of the teeth existed in early times amongst races widely differing in culture and diet, both agricultural and hunting types being affected. Races continually exposed to sunlight shared susceptibility to the disease with those living under Arctic conditions. We have seen how, at an early date, two distinct types of the disease could be recognised, and how hard use minimised to a great extent the rapid loosening of the teeth which so commonly occurs to-day. The differentiation and widespread nature of the disease in early times suggest that causes, other than local and dietetic ones, are concerned in the production of pyorrhœa. A number of systemic causes which initiate the pyorrhœic process are known, such as the ones we have discussed to-night. Many more causes have been put forward on theoretical grounds.

Perhaps, when the problems have been more fully investigated, many of these cases of pyorrhœa will be regarded much in the same way as a furred tongue—as an index of some systemic upset, but as an index rendered permanent and altered in form by secondary infections and dietetic errors.

SUMMARY

1. Pyorrhœa is not a modern disease.

2. It was widespread in 5000 B.C., and has been recorded in Neanderthal Man.

3. It was prevalent when caries only occurred sporadically and was comparatively rare.

4. There are two distinct types of pyorrhœa—one associated ætiologically with heavy deposits of calculus, the other not necessarily having such calculus.

5. The two types can be traced back to the earliest records of the disease.

6. The first type is a disease which originates from local mouth causes.

7. The second type is primarily a reaction of the gingival tissues to systemic disease, with increase in fuso-spirillary content under the favourable conditions resulting.

8. Treatment of this group of pyorrhœa must commence with treatment of the systemic causes.

Correspondence

Anæsthesia at Barnes Hospital

To the Editor of the GAZETTE

SIR,—In your issue of March 7th, Dr. Dodd challenges somewhat forcibly some figures I published concerning the relative consumption of various types of gas machines. I was careful to refrain from entering into a discussion on the relative merits of machines on the commercial market, but merely mentioned the differences in the running costs which were apparent in the ordinary routine work of a large hospital. Apparently Dr. Dodd's main objection was to the suggestion that a patient could use only 60 gallons per hour when an average respiratory exchange for an adult is approximately twice that figure. Unfortunately, he overlooks the fact that when ordinary air is breathed one is inhaling and exhaling nearly 80 per cent. of an inert gas; surely he does not seriously suggest that it is economic or efficient to waste the same quantity of an expensive anæsthetic gas?

I have watched the machine in question at work, and the re-breathing is minimal and never complete; the expiratory valve is always partly open. I can also assure him that ether is used in minimal quantities here, many patients having gas and oxygen alone. The cases are quite unselected, and include the usual material which is found in any theatre any day.

Since the figures were not primarily mine, and since it was suggested that there must have been some "cooking" to obtain them, I thought it only fair to show Dr. Dodd's letter to Miss Lamb, the senior anæsthetist, who very kindly supplied me with the figures, and I append a reply from her.

Yours, etc.,

R. C. BROCK.

Barnes Hospital,
St. Louis, Mo., U.S.A.

To the Editor of the GAZETTE

SIR,—I feel that Dr. Dodd's letter in the March 7th issue cannot be allowed to pass unchallenged, since it misinterprets basic principles which are fundamental to respiration and to anæsthesia.

His exception to my published figures of the "gas consumption" of certain anæsthetising machines arises from confusion as to the true significance of the simple figures of "tidal volume," which is a matter of mere respiratory exchange only, and in no way involves the amounts of *anæsthetic* gases required to establish narcotic concentrations in a patient's blood.

Clarifying this point first, the accepted figure for "tidal air volume" for a normal healthy subject at rest is 500 c.c. per respiration, which, multiplied by an average exchange of 20 per minute, yields a figure of 10 litres per minute, or 158 US gallons per hour.

This figure merely nominates the "total volume of gases," which must be at a subject's disposal at each inspiration, and is in no way concerned with what part of this volume comes from machine tanks or what part from previously expired gases and is for that reason no measure of the amount of anæsthetic gases required by a patient.

As a matter of both theory and practice, the factor which governs the amount of new gases necessary to deliver to a patient is *not* his volume of pulmonary exchange, but is instead a matter of what part of the gases already in service is to be utilised again (re-breathing in its best sense).

One type of anæsthetic machine (the circle respirator type) makes extreme use of this utilisation, and by filtering out CO_2 as expired into the machine by the patient, enables continuous re-use of anæsthetic gases—actually conducting perfect anæsthesia by merely furnishing the modest amount of oxygen needed for metabolic needs (300 to 400 c.c. per minute), with occasional small amounts of nitrous oxide to replace that lost by leakage around the face-piece. The actual consumption of gases by such a machine, after surgical state of narcosis has been established, is only about:—

N_2O	500 c.c. per minute (8 gals. per hr.)
O_2	350 c.c. per minute ($5\frac{1}{2}$ gals. per hr.)
Total	850 c.c. per minute ($13\frac{1}{2}$ gals. per hr.

yielding a complete and relaxed narcosis with respiratory rate and volume entirely governed by the anæsthetist through control of filtration of proper portions of carbon dioxide from the gaseous exchange.

To go now to the other extreme. Certain makes of machine are so constructed mechanically that physiologically sound re-breathing can be practised in only an insignificant way, except at the cost of severe respiratory fatigue to the patient—and such machines, by coupling mechanical leakages to this inconsequential re-breathing, actually consume in operation *more* gases per minute than the patient's complete volume of respiratory exchange amounts to.

The principal machine in use at Barnes Hospital (which furnished the results before published) is of neither of these extreme types, but is of a design which combines three features considered of prime importance :—

1. Fully controlled and physiologically correct narcosis, protecting patient from respiratory depression or fatigue and from anoxæmia.

2. Complete sterilisation of equipment between cases.

3. Economy of gas consumption.

All other types of machines used in this institution seem to violate one or more of these requirements.

Dr. Dodd states that my report that this machine uses only 60 gallons per hour " is on the face of it absurd," and offers in contradiction some figures of his own arrived at on a totally different type of apparatus and based on a very limited series of five cases involving $3\frac{1}{4}$ hours of anæsthesia.

In contrast to this, the figures published by me were a matter of operating-room record through the three months of July, August and September, 1930, and covered all the types of surgery and all types of patients operated on during that period. The total number of general anæsthesias administered by the machine in question was 463.

Later figures on the same machine are quite confirmatory, and show over a period of 258 hours of general anæsthesia an average gas consumption of 66 gallons per hour ; this in spite of the fact that the period includes the seasonal increase of mastoidectomies in the E.N.T. division of the hospital, cases which are considerably more extravagant of gases by reason of the technique of loose holding of face-piece by hand instead of the usual quite leakless face-piece which is a routine here.

I suggest that it is improper to offer results of small or restricted series of cases in either support of or contradiction to a controversial point ; however, the carefully tabulated results which I have submitted, covering, as they do, a period of several months in an institution like Barnes Hospital (where 3,900 general anæsthesias were administered during 1930), include sufficiently varied types of surgery, of patients and of anæsthesia to warrant proposal as " average results " quite representative of what may be expected of such equipment when properly manipulated.

Yours, etc.,

GLADYS LAMB.

Guy's Hospital '89 Club

To the Editor of the GAZETTE

SIR,—The above Club are holding their 35th Dinner on Wednesday, 13th May, at the Carlton Hotel, Pall Mall, S.W.1.

Dr. E. A. Peters will be in the Chair, and I should be glad if all the members of the Club will keep the date open and attend if possible.

Notices will be sent out in due course.

Yours, etc.,

GERALD S. HOVENDEN,

Glebeholme, *Hon. Secretary.*
Barnes, S.W.13.

Hostels for Nurses.

To the Editor of the GAZETTE

SIR,—We hear a great deal about the expensive nurses' homes which are being built to accommodate the personnel of our hospitals, but unless these homes are being built a considerable distance from the hospitals it is more than probable that in ten years' time they will be untenanted.

There is a growing distaste on the part of women to live always in the hospital atmosphere, never to escape from the scene of their work, and unless this very reasonable objection can be met and overcome, the shortage of candidates for the nursing services will continue.

What is necessary to meet the requirements of professional women is not a nurses' home, but a nurses' hostel, built at a reasonable distance from the hospital and run on commonsense lines. The trained members of the Staff should be provided with latch-keys ; if they abuse the privilege they are obviously unfitted to discharge the responsible duties for which they have been engaged. The nurses " in training " should have latch-keys issued to them the day previous to their " days off," which they should return the following morning.

The hostel should be furnished on the bed-sitting-room plan, each room should contain a built-in wardrobe of a reasonable size, a dressing-table, a fitted washstand, a divan-bed, a writing table and an easy chair. Many nurses' rooms are untidy because the accommodation provided is totally inadequate to the demands made upon it.

Beside the common-rooms, there should be a shampoo, a sewing and an ironing room, and, above all, there should be a lounge where nurses could receive their friends and a pantry where, if they provided the necessary fare, they could prepare and offer them a cup of tea. It is a shocking state

of affairs when the nursing staff of a hospital have to frequent cafés and cinemas because there is no place where they can have half-an-hour's conversation with either a man or a woman friend.

The question of emoluments is another cause of grave dissatisfaction. The authorities claim to supply their personnel with board, lodging, light and washing, but only the rate-supported hospitals make any allowance to their staff when they are on leave. It is grossly unfair that the hospital should continue to charge the nurse for benefits she is not receiving, and which for purposes of superannuation are assessed in terms of pounds, shillings and pence. On her days off the nurse has to provide herself with food, unless she remains in the hospital. There is no reason why the system which works satisfactorily in the army nursing services should not be applied to civilian nursing, and the nurse be given a chit entitling her to claim, in addition to her monthly salary, a day's allowance in lieu of the food she has not consumed.

Tradition dies hard, and many of the rules and regulations still in force in our hospitals and nurses' homes are based on the mediæval assumption that nursing is a vocation, not a profession, and that the nurse's horizon is bounded entirely by her work. Until this myth is finally laid to rest there will be neither peace nor security in the nursing profession, and we shall founder still deeper into the slough of discontent.

Yours, etc.,
GLADYS M. E. LEIGH.
Hertford County Hospital, Hertford.

Oxford and Cambridge Society

To the Editor of the GAZETTE

SIR,—The 41st Annual Dinner of the Society will be held at the Arundel Hotel, Arundel Street, Strand, on Tuesday, May 19th, at 7.45 for 8 p.m. Dr. E. P. Poulton will be in the Chair, and all Oxford and Cambridge men may bring guests, who should be Guy's men. Evening dress is optional, Tickets, 6s. each, may be obtained from either of the Secretaries.

Yours, etc.,
P. M. F. BISHOP (Oxford),
G. V. STEWARD (Cambridge),
Hon. Secs.
The College,
Guy's Hospital, S.E.1

Reviews

Rest and Pain. By the late JOHN HILTON, F.R.S., F.R.C.S. New and cheaper edition. Published by Messrs. G. Bell & Sons, Ltd. *Price 5s.*

IT would be an impertinence to the memory of the author of this classical book to attempt anything here in the nature of a review. In addition, we may assume—and we hope we are correct in assuming it—that more than three-quarters of the readers of the *Gazette* are already familiar with its contents. This notice, which is solely addressed to the other quarter, is chiefly written to draw attention to the fact that a cheap edition has now appeared for the first time, at a price which places it within the reach of everyone. In these days of laboratory and other aids to investigation, it is amazing to read in these pages how accurate diagnosis could be obtained solely by observation and clinical sense. For this reason we would strongly recommend all those who have just entered the wards to study carefully the method of approach and examination of the cases described here, as these records form an invaluable foundation for the development of a clinical sense.

Guy's Hospital Reports. Vol. 81 (Vol. 11, Fourth Series), No. 1, January, 1931. Published by *The Lancet*. *Price 12s. 6d.*

THE current number of the Reports consists of a symposium of Streptococcal Infections, and thus forms a valuable companion number to the April issue of last year which dealt with diseases due to the Staphylococcus.

Drs. Ryle and R. E. Smith present an introductory paper on "Streptococcal Fever," and with the aid of 31 case reports they establish a well-defined clinical picture of a syndrome in which diarrhœa, a temporary nephritis, a rapidly progressive anæmia, and a smooth, red, desquammated and sore tongue are characteristic features. These symptoms in association with a high fever, rigors, delirium and prostration are sufficient to engender a very strong suspicion of a streptococcal invasion of the blood. In enumerating the paths of invasion they point out the part played by fatigue, exhaustion, anæmia and concurrent infections in the ætiology of the condition. In discussing the differential diagnosis, they mention the value of the white count in distinguishing typhoid fever, and the importance of blood culture. Survival beyond the immediate stage of onslaught, *i.e.*, the first fortnight, is regarded as indicating a good prognosis, especially when accompanied by a high leucocytosis and surgically accessible localisations of invasion. With regard to treatment, they find little evidence in favour of the efficacy of serum therapy, and condemn the use of chemical antiseptics by the intravenous route, placing reliance mainly on good nursing, a copious fluid intake and a careful scrutiny of the serous cavities for the development of aspirable effusions.

Mr. G. F. Gibberd deals with streptococcal puerperal sepsis. In a total maternal mortality rate of 0.103 per cent. at Guy's and on the District during the years 1919-1928, only 0.014 deaths in every 100 were due to sepsis. These figures compare favourably with the maternal mortality rate of 4.5 per cent. for England and Wales at the present time. The importance of the streptococcus in puerperal infection is obvious from the estimation that it is responsible for 60 to 90 per cent. of all fatal cases of puerperal sepsis, and the serious significance of isolating the *S. hæmolyticus* in cases of puerperal infection is shown by the fact that it occurs in only 8-30 per cent. of the non-fatal cases. Mr. Gibberd divides the clinical types into those due to the extremely virulent *S. pyogenes*, in which the blood culture is almost invariably positive; those due to an organism of low virulence, *S. viridans*, which is rarely recovered from blood culture, and a third group, where, though the blood culture is negative, a fatal result occurs. Concerning this latter group, he is prepared to accept the theory of Colebrook that the condition is due to an anaerobic type of streptococcus, which cannot be grown by ordinary methods of culture. With regard to the sources of infection, he lays stress on the importance of droplet infection from the throats of the attendants upon the confinement, and urges the necessity for the use of face masks.

Passing on to treatment, he points out the dangers of such heroic surgical efforts as hysterectomy, curettage and douching, preferring to employ the principles of drainage as exemplified by the Fowler position, the use of oxytoxics such as ergotamine, and the instillation of intrauterine glycerine as practised by Remmington Hobbs, pointing out in this connection, however, the dangers of employing this method except with the closest attention to the details of the technique. With regard to general treatment, he puts faith in good nursing, sedative drugs and the control of constipation. He regards the use of antiscarlatinal serum as beneficent in cases in which the streptococcal infection is confined to the birth canal, and points out the value of blood transfusion in prophylaxis against sepsis in those cases in which there has been severe hæmorrhage, but is not impressed with its therapeutic use. He shares Dr. Ryle's scepticism towards the efficacy of the intravenous injection of mercury and arsenic compounds.

Dr. F. A. Knott contributes a paper dealing with the streptococci from the bacteriological viewpoint. In adopting Brown's classification, he refers to α, β and γ strains. The α strain corresponds to the group of low virulence included under *S. viridans;* β are the hæmolytic type, and γ includes all the practically non-pathogenic organisms such as *S. salivarius*, *S. fæcalis* and *S. mitis*. With regard to the serum treatment of streptococcal diseases, he reminds us that the serum is antitoxic and not antibactericidal, and that if given early enough it has the power to protect against the acutely septicæmic phase of the streptococcal infection. With regard to rheumatism, Dr. Knott mentions the possibility of the *S. viridans* producing an exotoxin akin to that of the β hæmolytic strains, but producing only rheumatic manifestation.

Mr. W. M. Mollison deals with streptococcal infections of the throat, and points out that the hæmolytic strain is almost always responsible for the "acute streptococcal throat," and that carriers of *S. hæmolyticus* are unlikely to suffer from "acute throats." He strongly advises treatment with anti-streptococcic serum.

Mr. T. B. Layton, writing on hæmolytic streptococci in the mastoid, divides mastoiditis pathologically into three stages. The first is that of acute bone disease due to an invasion by the hæmolytic streptococcus. This is followed by a stage when the bone is sterile. The chronic stage is reached when the bone is attacked by a secondary infection either through a perforation of the drumhead or through the Eustachian tube. The discharge must be considered infectious from a public health point of view as long as the first stage lasts.

Dr. H. W. Barber reviews clearly and concisely the diseases of the skin which are due to streptococcal infection, dividing them into the two groups of infections of external origin, such as impetigo and streptococcal fissure and intertrigo, and those eruptions of endogenous origin which are due to an allergic state of the skin towards the streptococcus. The latter he designates as streptococcoides.

Dr. L. Forman, in a note on intradermal tests in erythema multiforme and lupus erythematosus, describes results pointing to specific sensitisation to the *S. hæmolyticus*. He mentions two cases of erythema multiforme in which intradermal vaccination has given good results.

Mr. A. Bulleid contributes a note on the bacteriological study of the apical infection of teeth, and, as a result of an investigation of 800 cases, the conclusion is reached that all types of apical infection are primarily streptococcal, but that no one causal organism is responsible which can be determined by either aerobic or anaerobic methods.

Mr. Philip Turner reports a case of streptococcal septicæmia with peritoneal localisation.

Sport

Rugby

THE season of 1930-31 being completed, I have pleasure, as in past years, in enclosing chart and statistics of the 1st XV performances.

The figures are an improvement over those of last season's. There was the same number of matches played, *i.e.*, 28, the scoring, however, both by us and our opponents being lower.

Only one match was scratched, as against two last season, the team being the London Irish, whose match, strangely enough, was also scratched last season.

Wins of outstanding note were those over Gloucester (twice) and, again as last season, Aberavon in Wales; this splendid win makes the loss against Bart's in the Cup, a few days later, all the more amazing, as it would have appeared from the team's form about this time that the Cup was a certainty for another season at Guy's.

A point of interest in the records is that our opponents scored exactly the same number of dropped goals, and were awarded the same number of penalty goals as ourselves.

If these records are correct, Batchelor only missed two matches (*v.* Old Leysians and Coventry), a good record, and Hogbin again, as in last season, showed that he still has "shooting boots," he having converted 26 tries, this being two more than last season. The Captain, W. Lewis, also took a number of successful "drops" at goal.

The players who took part in the Cup match against Bart's are starred in the statistics.

SEASON 1930-31

The following have taken part in 1st XV matches during the season :—

*Batchelor (26), *Hogbin (25), *O'Shea, *Ashdown (24), *Giesen (23), *W. Lewis, *Lashmore (22), *Johnson, *Windsor Lewis, *Popplewell, *Robin (20), Eustace (17), *Thomas (16), Morgan (15), *Hilton (14), Knight (12), Fichard (11), Burrows (10), *Kunovsky, Robinson (9), *Howell (8), Clarke (7), Drummond, Wailer, Rowlett (6), Campbell, A. J. Lewis, Clegg (4), Atkins, Hale Munro, Beckett, Outred and Shore (2), Wooddivis, Leeming, Peatfield, Watson and Zorab (1).

The following have scored tries :—

Fichard (10), Giesen (9), Ashdown (8), Johnson (6), Morgan, Hogbin, Lashmore, Thomas (4), Popplewell (3), Windsor Lewis (2), A. J. Lewis, O'Shea, Atkins, Burrows, Batchelor and Wailer(1).

The following have scored goals :—

	Tries Converted.	*Dropped.*	*Penalty.*
Thomas ..	—	1	—
Windsor Lewis..	—	4	1
O'Shea	6	1	—
Hogbin:.. ..	26	—	9
Giesen	—	1	—
Clegg	—	1	—

making a total of 60 tries—32 tries converted, 10 penalty goals, 8 dropped goals; total points 306.

Our opponents' score was as follows :—

Tries 57, tries converted 28, penalty goals 10, dropped goals 8; total points 289.

Therefore the complete figures are :—

Played 28, won 13, lost 13, drawn 2. Points for, 306; points against, 289; average points per game (for), 10.9; average points per game (against), 10.32; percentage, 50 per cent.

Season.	*P.*	W.	*D.*	*L.*	*Points. F.*	*A.*	*Per cent.*
1925-26 ..	29	14	3	12	235	234	53.5
1926-27 ..	34	18	3	13	371	294	57.35
1927-28 ..	26	12	3	11	190	206	52.0
1928-29 ..	30	11	1	18	220	404	38.3
1929-30 ..	28	12	1	15	322	311	44 7
1930-31 ..	28	13	2	13	306	289	50.0

Notice

EXAMINING Board in England by the Royal College of Physicians of London and the Royal College of Surgeons of England.

Notice is hereby given that all Candidates for the diplomas of L.R.C.P., M.R.C.S. who begin their professional studies after July 31st, 1931, will be required to pass the whole of the subjects of Section II of the Final Examination (Medicine, Midwifery, and Surgery) within a period not exceeding twenty-five months.

NOTE (i). The above regulation will not apply to Candidates who pass their Preliminary and Pre-Medical Examinations (Part I) before the end of July next.

NOTE (ii). A Canditate who does not succeed in passing the whole of Section II of the Final Examination within the specified period of twenty-five months (*i.e.*, nine examinations), will be required to pass again in any subject or subjects in which he may have already passed, untill he is able to comply with the regulation.

HORACE H. REW, *Secretary*,

The Examining Board in England.

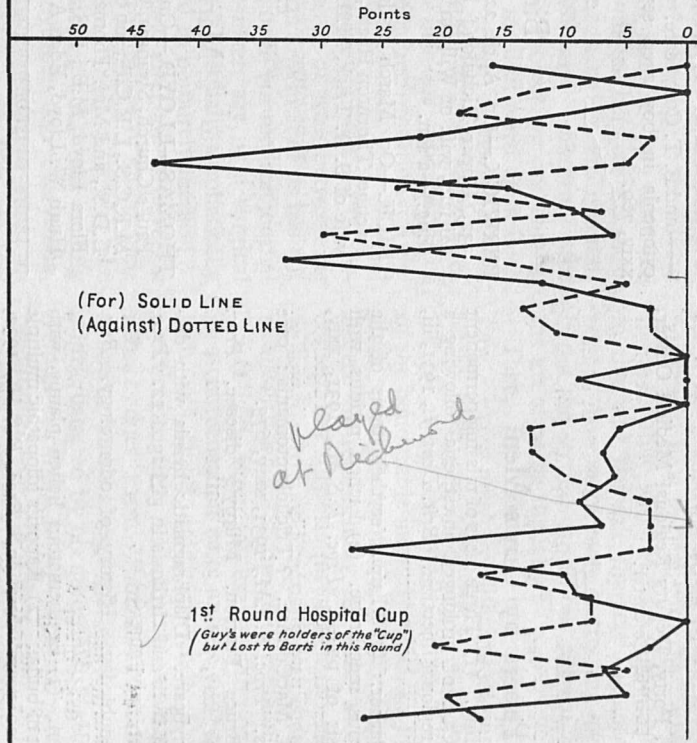
Guy's Hospital R.F.C.

Season 1930-31

(For) — **TOTAL POINTS** — 306.
Average Points per Match 10·9

— Percentage — 50%

(Against) — **TOTAL POINTS** — 289
Average Points per Match 10·32


Points
50 45 40 35 30 25 20 15 10 5 0
(For) Solid Line
(Against) Dotted Line
Played at Richmond
1st Round Hospital Cup
(Guy's were holders of the "Cup" but Lost to Barts in this Round)

OPPONENTS	DATE		G	SCORE For F	SCORE For A	SCORE For G	SCORE For T	SCORE Against G	SCORE Against T	GOALS	TRIES
	1930										
Catford Bridge	Sept. 20	H		16	0	3+	1	–	–	O'Shea 2, Windsor Lewis 1.+	Thomas 1, A.J. Lewis 1, Lashmore 1.
Bedford	" 27	A		0	13	–	–	2	2		
United Services	Oct. 4	H		10	19	2	–	3	2	Hogbin 2.	Fichard. 2.
Cheltenham	" 11	H		22	3	5+++	1	–	1	Hogbin 5.+++	A.Johnson 1, Popplewell 1, Lashmore 1.
Old Milhillians	" 18	H		44	5	7	3	1	–	Hogbin 4, O'Shea 3.	Fichard 4, Johnson 2, Giesen 2, Ashdown 1, Windsor Lewis 1.
Harlequins	" 25	H		15	24	3	–	5	1	Hogbin 3.	Hogbin 2, Fichard 1.
Old Blues	Nov. 1	H		9	7	–	3	2	–		Giesen 1, Lashmore 1, Hogbin 1.
Cambridge Uv.	" 5	H		6	30	2++	–	4+	4	Hogbin 2.++	
Coventry	" 8	H		33	17	6	2	3	1	Hogbin 5,+ Giesen 1.	Fichard 3, Johnson 1, Ashdown 1, O'Shea 1.
Old Leysians	" 15	H		12	5	2	1	1	–	Hogbin 1, Windsor Lewis 1	Morgan 2.
Birkenhead Park	" 22	H		3	14	–	1	3	–		Thomas 1.
Northampton	" 29	A		3	11	–	1	2+	1		Popplewell 1.
United Services	Dec. 3	A		0	0	–	–	–	–		
Richmond	" 6	H		9	3	–	3	–	–		Athens 1, Burrows 1, Morgan 1.
Aberavon	" 13	H		0	0	–	–	–	–		
Coventry	" 20	A		6	13	–	2	2	1		Thomas 1, Hogbin 1.
	1931										
Old Merchants T.	Jan. 3	A		7	13	1	1	2	1	Thomas 1.	Giesen 1.
Northampton	" 17	H		6	10	–	2	2	–		Windsor Lewis 1, Popplewell 1.
Gloucester	" 24	H		9	3	2+++	1	–	1	Hogbin 2.++	Ashdown 1.
Rosslyn Park	" 31	H		7	3	2	–	–	1	Hogbin 1,+ Windsor Lewis 1.	
Rosslyn Park	Feb. 7	A		28	3	6+	–	1+	–	Hogbin 5.	Giesen 3, Ashdown 1, Thomas 1, Johnson 1.
Cambridge Uv.	" 11	A		10	17	1	2	2+	3	Windsor Lewis 1.	Johnson 1, Lashmore 1.
Aberavon	" 14	A		9	8	2	–	1	1	Hogbin 1, O'Shea 1.	Ashdown 1.
Bart's Hospital	" 17	N		0	8	–	–	1	1		
Birkenhead Park	" 21	A		3	21	–	1	3	2		Ashdown 1.
Gloucester	" 28	A		7	5	1	1	1	–	Windsor Lewis 1.	Batchelor 1.
Bristol	Mar. 7	A		5	20	1	–	1	5	O'Shea 1.	Ashdown 1.
Old Alleynians	" 21	A		27	17	5	1	4	1	Hogbin 4, Clegg 1.	Giesen 2, Morgan 1, Waller 1, Ashdown 1.

PLAYED 28. WON 13. LOST 13. DRAWN 2.

+ Indicates Penalty Goal Indicates Drop Goal.

Hospital Information, etc.

Pass List

CAMBRIDGE UNIVERSITY.

April, 1931.

PART II.

Diploma in Medical Radiology and Electrology.

H. W. A. Post.

Change of Address

K. B. Alexander, M.B., B.S., The Old Lodge, Byfleet, Surrey.

Dr. F. Howard Pratt (anæsthetist), 23, New Cavendish Street, W.1. *Langham* 2663.

A. E. Sawday, M.B., B.S., 62, Queen Anne Street, Cavendish Square, W.1. *Langham* 8626. *And* Hillside, Crouch End Hill, N.8. *Mountview* 2279.

G. McK. Thomas, L.D.S., M.R.C.S., L.R.C.P., 43, Sketty Road, Swansea.

F. T. Wilkinson, L.D.S., R.C.S. (Eng.), 4, Overcliff, Gravesend, Kent. *Gravesend* 732.

A. A. Forty, M.R.C.S., L.R.C.P., The Elms, Rothley, Leicester.

Appointment

Dr. A. A. Forty, Deputy Regional Medical Officer, Ministry of Health, Leicester.

Papers by Guy's Men

L. E. Balding. (1) Three cases of missing permanent teeth. (2) Case of prolonged anæsthesia following a mandibular regional injection. *Brit. Dent. J.*, 1931, lii, 383, 384.

H. W. Barber. (1) ? Lupus erythematosus of the buccal mucous membrane. (2) Lichen nitidus with hyperkeratosis of palms. *Proc. R.S.M.*, 1931, xxiv, 676, 677.

—— and H. MacCormac. ? Trichokyptomania: case for diagnosis. *Proc. R.S.M.*, 1931, xxiv, 675.

R. S. Bruce Pearson. Milroy's disease. *Proc. R.S.M.*, 1931, xxiv, 708.

J. J. Conybeare. Diaphragmatic hernia with displacement of liver and cirrhosis in girl aged 12. *Proc. R.S.M.*, 1931, xxiv, 707.

F. N. Doubleday. History of odontology. *Brit. Dent. J.*, 1931, lii, 372.

L. Forman. (1) Erythematous lichen planus, with development of bullæ. (2) Kaposi's idiopathic multiple sarcoma of 20 years' duration. *Proc. R.S.M.*, 1931, xxiv, 684.

A. C. Hampson. Three cases of congenital telangiectasis. *Proc. R.S.M.*, 1931, xxiv, 708.

A. F. Hurst. Teeth and stomach. *Amer. Dent. Surg.*, 1931, li, 89.

—— Ulcerative colitis. *B.M.J.*, 1931, i, 693.

—— and C. F. Cosin. (1) Hyperparathyroidism with hypercalcæmia and decalcification of bones. (2) Two cases of anæmia following gastroenterostomy for duodenal ulcer. (3) Aplastic anæmia in man aged 33. *Proc. R.S.M.*, 1931, xxiv, 707.

E. G. G. Little. (1) Parapsoriasis en plaques. (2) Scelerodermia. (3) Neurotic excoriations. *Proc. R.S.M.*, 1931, xxiv, 685, 686.

O. G. Morgan. Conjunctivitis. *Proc. R.S.M.*, 1931, xxiv, 755.

P. N. B. Odgers. Two details about neck of femur: (1) the eminentia; (2) the empriente. *J. Anat.*, 1931, lxv, 352.

W. H. Ogilvie. Infections of hand. *Jour. R.A.M.C.*, 1931, lvi, 261.

—— Orthodoxy and heterodoxy in surgery. *Lancet*, 1931, i, 693.

E. P. Poulton. Infectious jaundice and epididymitis. *Proc. R.S.M.*, 1931, xxiv, 708.

R. E. Smith. (1) Hodgkin's disease treated by radium. (2) Anterior poliomyelitis affecting right shoulder girdle. (3) Aortic stenosis. *Proc. R.S.M.*, 1931, xxiv, 708.

L. J. Witts. (1) Two cases of splenomegalic polycythæmia. (2) Three cases of hepatic cirrhosis with diabetes mellitus. *Proc. R.S.M.*, 1931, xxiv, 707.

—— and E. T. Conybeare. Familial essential thrombocytopenia in boy aged seven. *Proc. R.S.M.*, 1931, xxiv, 709.

Births

BERWICK.—On April 22, 1931, at "Springfield," 332, Upper Richmond Road, Putney, S.W.15, to Miriam, wife of William E. Berwick, L.D.S., R.C.S. (Eng.)—a son.

TRICK.—On March 25th, 1931, at 229, Norbury Avenue, Thornton Heath, to Edith Mary (née Gibbs), wife of S. R. Trick, M.B., B.S.—a daughter.

Marriage

THOMAS—LLOYD.—On April 2nd, 1931, at St. Paul's Church, Swansea, G. McKim Thomas, L.D.S., M.R.C.S., L.R.C.P., son of the late Mr. H. J. Thomas, L.D.S., and Mrs. Thomas, Grove Place, Swansea, to Flora Lloyd, M.B., B.S., daughter of Mr. and Mrs. Hugh W. Lloyd, Eden Avenue, Swansea.

EDS. { P. M. F. B. / P. V. R.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

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PASSIM

THE word "lay" shares with a large number of words in the English language the distinction of being quite incorrectly defined in all English dictionaries, and we were surprised to discover that, in our opinion—an opinion which we hope may be only transient and capable of revision—one of its most important synonyms, the word "gullible," is not even mentioned in Roget's "Thesaurius of English Words and Phrases."

There are two important gaps in the present-day medical curriculum. One is the art of managing the laity, and we are now referring especially to private patients, and can suspect only that the reason for the silence of our teachers on this most important branch of medicine is an inherent professional jealousy. We say "inherent," for professional jealousy is a subject we *are* taught. Who of us has not as a medical ward clerk been made to listen to the cheap sarcasms of his physician or his registrar at the expense of surgery, or as a dresser had an opportunity of hearing the equally cheap reciprocation of the surgeon? Who, as a house officer, has not had his patience tried and his tact exhausted in attempting to smooth over a passage of arms between his own firm and a rival faction? Which of us has not been amused one week to open our medical journal and be told that gastric ulcer, say, is a surgical disease; while next week it is equally emphatically and at equal length stated to be purely medical?

But professional jealousy, after all, is merely a manifestation of the most primitive of all instincts —that of self-preservation. Those of us who take a pride in teaching conscientiously are willing to teach our pupils anything and everything, except such as will qualify them to stand in dangerous rivalry against us; in fact, we are willing to teach them everything except how to become "successful," and we therefore maintain a sphinx-like silence on the subject of the management of patients. And, viewed from a purely matter-of-fact standard, it is a perfectly justifiable attitude to adopt. No one *taught* the fashionable consultant how to become the idol of Wimpole Street; why should he teach anyone else?

But if it is distressing that we should not be taught how to extract three guineas from a city magnate and still retain his respect for our professional abilities; if it is disastrous that we are not taught how to deal with the "gullibility" of the lay public without imposing upon it and yet to the best possible financial advantage to ourselves; how much more distressing and disastrous is not the second gap in our curriculum, namely, the art of being the laity?

Take, for example, our dealing with the Law. Every newly-qualified practitioner who has lately been reminded by a pamphlet entitled "Bye-Laws of the Royal College of Physicians," of the honourable integrity which he has inherited from that illustrious ancestor, Hippocrates—a degree of reproachless integrity which he may confess has surprised even himself—is rather too willing to attribute an equally high code of honesty to all with whom he comes in contact.

Let him, again for example, become involved in a compensation case, and be subpœna-ed by a firm of crook solicitors—and, like criminal abortionists and welshing bookmakers, such a species does exist. Rather awe-struck by the subpœna and its legal phraseology and possibly a little flattered by his guinea conduct money—we have been careful to postulate the *newly*-qualified practitioner—he will duly present himself at the County Court, and, having cooled his enthusiastic

heels for three or four hours, he will step breathlessly nto the witness box, contradict himself flatly three or four times, and conduct himself generally rather like a typical hospital out-patient under cross-examination. He will probably, unless he is very lucky, commit perjury. He will certainly have been made to experience extreme mental anguish, and will probably come out of Court mopping his brow, and too hastily gulp a stiff whisky and soda, which may or may not be good for him. Only when he has recovered from the ordeal will he realise that he has not yet received his fee, which he may or may not have previously arranged with the solicitors. Then will follow a correspondence, most probably entirely one-sided, but possibly bilaterally acrimonious, which will almost certainly result in no pecuniary gain to himself. Or let him enter the Coroner's Court—but no, the vagaries of those lugubrious precincts are too well known to all of us to justify our elaborating the picture. The point is that, versed in a little knowledge—ever so little—of medical jurisprudence, the young doctor makes a hopeless witness and comes, unless he is careful, very badly out of the deal monetarily.

Such contact with the law is but one example of how completely unqualified is the ordinary man who has just left hospital to hold his own against those of sharper wits than his. Of course, we must all learn these things by experience, but it would be nice occasionally to benefit by the experience of others, and this is largely denied us during those precious years when we receive our professional training.

▭

AT a meeting of the Residents on Monday, May 11th, Mr. P. V. Redding was elected President of the Residents, and Mr. W. J. Ferguson, Vice-President.

▭

THE Going-off Dinner was celebrated yesterday with the maximum of noise. It was as marked by the usual eloquent and graceful after-dinner speeches as by the age-old habit of throwing lumps of bread at one another; still no one was actually injured, and everyone present seemed to enjoy it very much.

Œdema and its Treatment

A Paper read before the Guy's Hospital Physical Society, by Mr. M. J. A. McArdle

MR. CHAIRMAN and GENTLEMEN,—The man who writes on œdema will never be a best-seller. The man who dogmatises on it will always be in hot water. Conscious of their fate, writers on the subject have kept to the attitude commonly supposed to be appropriate to the true scientist; they have been content rather to sum up accumulated experience, adding a coin or two of their own, than to adventure on greater gambles. A Bright is a rare occurrence. His monumental work on renal disease, with dropsy in the foreground, is still the unfailing source of modern inspiration throughout the medical world. Incidentally, it will be remarked that, for the most part, authors of tomes on œdema strenuously, if not always successfully, follow the advice of Bright, that in a study of medicine we should cultivate a chastened form of generalising our ideas. But what an impossible task is thus presented to the poor student who essays to summarise their conclusions in a paper limited to three-quarters of an hour and is therefore compelled by time to exclude so many of their qualifications.

Œdema is a condition in which an excessive accumulation of fluid occurs in the tissue spaces. As the result of an eccentricity in the regulation of the water content of the body, fluid accumulates in the tissue spaces and in those great reservoirs, the serous cavities; but, however abnormal the final result, œdema may often be regarded as only a quantitative and not a qualitative deviation from the normal. This gives rise to a swelling which, when subcutaneous, characteristically pits on pressure. The factors in its production are often those normally concerned in the balance between the blood, the tissues and lymph. Even a normal subject, as Baird and Haldane[1] have shown, may become œdematous if given large quantities of salt and water. Accumulation of fluid is gradual, and Widal tells us that, before œdema becomes evident clinically, as much as 6 litres may be present in the tissues.

The normal factors in the water balance of the body are not yet fully understood, and, pending that knowledge, the student of œdema cannot be said to be properly equipped. His direction of pursuit must be by way of applied physiology. In covering that ground, however tedious the delay, it may, I am afraid, be necessary to irrigate it by some reference to tissue fluid formation, as with this is closely linked the problem of œdema.

Each tissue cell is bathed by tissue fluid, which serves as a source of nourishment and excretion. It is quite distinct from lymph, which circulates solely in closed channels. The forces tending to drive fluid into the tissues are: (1) the hydro-static

pressure and (2) the osmotic pressure of the tissues. Balancing these are (1) the O.P. of the plasma colloids and (2) the O.P. of the blood crystalloids. Diffusion works either way, according to the concentration on either side of the membrane.

Starling stated that when a limb was at rest the hydrostatic pressure balanced the osmotic pressure of the plasma colloids so that the amount of tissue fluid remained fairly constant. But with the onset of activity, the rapid metabolism of tissue cells results in the formation of numerous smaller molecules; some of these diffuse into the tissue spaces; the osmotic pressure of the tissues rises and there is soon a great increase in the amount of tissue fluid. As this drains partly into the lymphatics, increased flow of lymph follows, showing that the amount of tissue fluid blood formed depends largely on the activity of the tissues and on the osmotic pressure developed therein.

Another important factor in this respect, however, is the permeability of the capillary wall. Krogh[2] says that when capillaries are widely dilated their permeability increases, and that under such conditions soluble starch particles will enter the tissue spaces, though normally they could not penetrate the vessel wall. There is yet another way in which the tissues may retain fluid. The tissue cells themselves may swell. According to Fischer,[3] colloids of the type of the tissue proteins take up water with great avidity, the amount depending on the nature of the protein, the reaction of the surrounding fluids and the nature and concentration of the salts present. Gelatin, for example, can be made to imbibe water if placed in a slightly acid or alkaline solution, and, given suitable surroundings, it will take up 25 times its own weight. The greater the acidity or alkalinity, the greater the swelling.

On this basis, Fischer explains all causes of œdema. His theory has been widely criticised and attacked from every angle. According to J. Loeb[4] the water imbibition capacity of proteins arises not from any intrinsic power, as Fischer supposed, but from the fact that in an acid or alkaline solution they dissociate, behave as ions, and can, therefore, exert an osmotic pressure.

We shall mention further criticisms of Fischer's theory later, but for the present we may accept it as a possible cause for the retention of fluid in the tissues. Now we can imagine that the main factors likely to cause œdema will be :—

1. Obstruction to lymphatic flow.
2. Increased blood pressure.
3. Increased O.P. of the tissues.
4. Decreased O.P. of the blood, especially the plasma colloids.
5. Increased permeability of the vessels.
6. Increased attraction on the part of the tissue colloids for water.

Clinically, it is convenient to divide œdema into six different groups :—

1. Inflammatory.
2. Toxic, including angio-neurotic.
3. Obstructive—
   Lymphatic.
   Venous.
4. Cardiac.
5. Renal.
6. Nutritional—
   Anæmias and cachexias.
   Famine œdema.
   Œdema of beri beri and faulty diets.

This, of course, is not an ideal classification. But as yet a classification has to be founded on clinical experience rather than on pathogenesis, for it seems that in the production of any œdema it is not a matter of one factor but of many. Let me take each type in turn and briefly indicate the main underlying causes.

INFLAMMATORY

By far the commonest cause of œdema is inflammation. The very high protein content of the fluid in these cases is characteristic, showing that the essential feature in their production is an increased permeability of the blood vessels. Moreover, as the exudation of fluid is soon followed by the emigration of leucocytes, there must obviously be wide separation of the endothelial cells. Schade,[5] however, found that in suppurating areas the osmotic pressure of the disintegrating tissues might be as high as 11 atmospheres, and to him this œdema is primarily osmotic in origin.

TOXIC ŒDEMA

Closely related to inflammatory œdema are the œdematous wheals of urticaria. Here, again, it is reasonable to assume that the wheal is due to increased permeability of dilated vessels, as in later stages even a few leucocytes may pass through. The toxic substance in these cases is probably histamine,[6] as, in a subject sensitive to fish, an injection of histamine will exactly parallel that produced by a fish extract.

It is now believed that angio-neurotic œdema is merely a giant urticaria, and that an increase in capillary permeability due to a circulating toxin is as much the cause in these exaggerated types as it is in the ordinary forms. In some cases an article of diet is the exciting factor. But the occurrence of this œdema in nervous people, and under the influence of emotion, suggested to

Quincke that it was due to a paralysis of the vasomotor nerves. Later it was found that section of these nerves did not give rise to œdema. Quincke abandoned his hypothesis and adopted the view that changes in the tissues leading to increased attraction of water were primarily responsible.

If an increased permeability is the dominant cause, relief should be obtained by substances which diminish this permeability. One of the most potent drugs in this connection is adrenalin, and it is found that a subcutaneous injection of 3-7 minims of liq. adrenalin hydrochloride is one of the most useful methods for relieving an attack. Similarly calcium, which also diminishes permeability, has been used with success in many cases.

OBSTRUCTIVE ŒDEMA

To the clinician, one of the most obvious causes of œdema is obstruction either of the veins or lymphatics. He thinks of phlegmasia alba dolens, of the œdema in phlebitis and that associated with tumours pressing on veins. It is curious that the pathologist finds it very difficult to produce œdema by ligature of a vein. For example, Ranvier and many others found that no œdema ensued if they ligatured the femoral vein and even the inferior vena cava. To produce it, Ranvier had to cut the sciatic nerve as well. The arterial hyperæmia following the vasomotor paralysis then produced œdema. In these experiments the obstruction was limited to a single point in a vein, allowing the re-establishment of a collateral circulation, and, as Achard points out, this must surely be different from a thrombus which obliterates a long section of vein and many of its afferent branches.

However, the experiments of Ranvier, and the failure of Cohnheim to produce œdema by the injection of large quantities of saline solution, make it probable that the increase in capillary and venous blood pressure is not entirely adequate as an explanation of such œdemas. It seems that the cause may largely reside in the tissues, or possibly in an increased permeability following capillary dilatation. The former hypothesis is supported by the following experiment. If a limb is deprived of blood for an hour, or kept full of stagnant blood, œdema results as soon as the circulation is restored. Owing to the disturbed nutrition during this period, metabolites accumulate and raise the osmotic pressure of the tissues, with the result that when fluid comes to the part it is retained.

The results of lymphatic obstruction are seen in elephantiasis, where œdema follows obstruction of the lymphatics by filaria and their ova. Curiously, lymphatic obstruction produces a very tense form of œdema, which does not pit readily.

CARDIAC ŒDEMA

Perhaps one of the most important signs of cardiac failure is œdema, and a slight puffiness round the legs in the evening may be the earliest indication that decompensation has set in. Being associated with venous engorgement, it is more liable to occur in mitral than in aortic disease, and whereas, in the later stages of mitral disease, it is not uncommon to see ascites and hydrothorax, a patient with pure aortic disease rarely dies with general dropsy, and usually has nothing more than œdema of the legs. It is often easy to distinguish between the œdema of cardiac and renal origin; the cardiac type is mainly in the dependent parts, though in children it may occasionally be confined to the face, and it is associated with other signs of heart failure such as dyspnœa, cyanosis, enlarged liver, etc. More than 2-3 per cent. of albumin and the presence of blood in the urine would favour a renal origin. It must be realised that swelling of the ankles may also be due to general causes, notably anæmia and debility. Varicose veins must always be excluded before cardiac œdema is diagnosed. Cardiac œdema seems to occur when the circulation rate is reduced by about half.[7]

The cause of cardiac œdema lies in the venous engorgement. The experiments mentioned above on the analagous condition of obstructive œdema make it probable that an increased capillary and venous blood pressure is not the only cause. L. Loeb[8] and others believe that increased permeability of the vessels following on capillary dilatation is the main factor. However, the protein content of the œdematous fluid in cardiac cases is moderately low—4 per cent., and it seems therefore, that an increased permeability cannot be very striking. It is more likely that the explanation resides in the tissues. Jacques Loeb found that separating a muscle from its blood supply led to such an increase in the osmotic pressure that it took up water from a solution which had a pressure of over 30 atmospheres. He found that whenever oxidation was impaired in a tissue the osmotic pressure rose, due to an accumulation of incompletely oxidised metabolites, and as a result the tissue took up water and became œdematous. On this basis we could explain cardiac œdema. Fischer's theory is somewhat similar. As a result of deficient oxygenation, acids are formed and retained in the tissues. These lead to a swelling of the tissue colloids, and this gives rise to œdema.

RENAL ŒDEMA

One of the most interesting causes of œdema is that associated with diseases of the kidney. Other symptoms of nephritis may be inconstant, but it is usual to find œdema at some stage of the disease. Usually present in acute nephritis, it dominates the scene in chronic parenchymatous nephritis, and in the chronic interstitial type, though uncommon in the earlier stages, it may mark the beginning of cardiac failure. However, it is not of the same nature in these stages. In chronic interstitial nephritis it is usually apparent only when there is cardiac failure, and is, therefore, purely cardiac in origin. As such it may not be generalised, involving no more than the ankles or legs. Again, there are differences between the œdema of acute and chronic parenchymatous nephritis; in the former, the dropsical fluid has a very high protein content, namely, 1 per cent.; in the latter it is very low, usually .1 per cent. These differences point to a different origin. The term "chronic parenchymatous nephritis," as commonly used, includes two distinct types of renal lesions. Firstly, it covers those cases of subacute nephritis where dropsy is the most striking symptom, and, secondly, it includes those rare cases of pure lipoid nephrosis. These two diseases are at one stage almost identical clinically and biochemically, and as the cause of the œdema is the same in both we shall refer to it as the nephrotic type of œdema, as opposed to the nephritic œdema of acute nephritis. Though this distinction is convenient, it is not always exact, as the types must merge when passing from the acute into the subacute stage.

NEPHRITIC ŒDEMA

A sudden onset of dropsy is one of the characteristic features of acute nephritis, and though it may appear as the first sign, it is often delayed until after the hæmaturia has become evident. In mild cases it may be completely absent. The localisation is variable. Usually it is first seen in the loose cellular tissue of the eyelids, and this is characteristic of nephritis, just as the œdema of cardiac failure, more dependent upon gravity, is more likely to appear first round the ankles. But variations are not uncommon; the ankles, or the scrotum, may be the first parts involved, and, in those who have been lying in bed, the lumbar regions may be affected first. Once apparent, it spreads no further in many cases, whereas in others the spread is more rapid, serous effusions may occur, and rarely there may be œdema of the larynx. Œdema of the lung is often not a renal but a cardiac complication.

The dropsical fluid in acute nephritis is rich in protein (over 1 per cent. according to Beckmann). For such amounts of protein to pass into the tissues it is probable that the permeability of the capillaries must be increased, and nowadays most authors regard this as the most likely cause for the œdema. There are no changes in the blood which could otherwise explain it. The blood pressure may be raised, but this bears no relation to the degree of dropsy. Blood volume is normal (Brown and Rowntree[9]). The colloid osmotic pressure of the blood is only slightly reduced. Salt retention has been incriminated, but we shall see later that this cannot be the primary factor.

In recent years acute nephritis has come to be regarded as a generalised capillary disease, in which the glomerular vessels suffer most because they happen to be concerned in the excretion of the toxins.[10] The damage to the capillary tufts is shown by hæmaturia; the less marked injury to the subcutaneous vessels leads to an increased permeability of their walls and œdema is the result.

NEPHROTIC ŒDEMA

Dropsy is the dominant symptom in the nephrotic type of subacute nephritis, in lipoid nephrosis, and usually in syphilitic and amyloid diseases of the kidney. These conditions comprise the hydræmic as opposed to the azotæmic type of nephritis.

In these diseases the œdema is more extensive than that of acute nephritis. Starting in the face, it soon involves the ankles, legs and scrotum and, *crescit indulgens sibi dirus hydrops*, may eventually produce anasarca and lead to effusions into the serous cavities, especially the peritoneum and thorax. It is easy to pick out at a glance the large, swollen man with a dull white, almost waxy colour.

What is the cause of œdema in a case of nephrosis? Besides the dropsy, the disease is characterised[10 11] by oliguria, great albuminuria, but without any increase in blood pressure or impairment of renal function. In addition, there is marked deficiency of sodium chloride in the urine, and a low protein content and raised fat content of the blood.

The œdematous fluid in these cases contains very little protein—sometimes only a trace and usually under .1 gm. per cent. Its osmotic pressure is the same as that of the blood, but, in accordance with the Donnan equilibrium, it has a higher chloride content.[12] With such a low protein content, it is unlikely that the cause of the œdema lies in increased permeability of the capillary wall.

Is œdema the result of the oliguria?

Older writers assumed the œdema to be the result of a diminished power of the kidney to excrete water, which resulted in a hydræmic plethora and, through this, a forcing of water into the tissues. It is now obvious that the oliguria is the result and not the cause of the water retention. The water is retained in the tissues and there is little for the kidney to excrete. Conviction is given to this hypothesis by the fact that the blood volume is normal.[9] Further, though Cohnheim produced an hydræmic plethora by the injection of enormous quantities of saline, he failed to produce any subcutaneous œdema.

Is œdema the result of salt retention?

Mainly due to the work of Achard[13], Widal[14] and Strauss in the beginning of this century, it was shown that a retention of sodium chloride occurred in œdematous cases, and that, as the œdema subsided, sodium chloride appeared in increased amounts in the urine. In one case of nephritis, Widal found that by giving salt he was able to bring on œdema, and that by withholding it the œdema disappeared. He therefore inaugurated the use of the salt-free diet, and his success in some cases seemed to prove the great importance of salt retention in this disease. He held the view that this substance accumulated in the body owing to failure of the kidney to excrete it. But difficulties soon arose in his path. Why did a kidney fail to excrete salt and yet excrete urea normally? Widal assumed a dissociated permeability on the part of the kidney. This met with little approval. Moreover, as great a salt retention occurs in cardiac failure, typhoid and pneumonia, where the function of the kidney is not greatly interfered with. Again, the blood chloride in œdematous cases is not always raised. It therefore becomes more and more obvious that the retention of salt could not be imputed to a renal barrier, but, as Achard had always insisted, that it was largely due to an extra-renal factor which held the salt, and with it the water, in the tissues. Further, in many cases of extensive œdema the blood chloride is markedly lowered. The greatest increase in the level of the blood chloride is met with in mechanical obstruction to the ureters, and it is also raised in the late stages of chronic glomerulo-nephritis. But in neither case is œdema present. We may, therefore, conclude that the retention of salt in this disease is not due to deficient excretion on the part of the kidney, but to an extra-renal factor which, as Fishberg[10] puts it, causes a pre-renal deviation of salt and water; that retention of salt will not always in itself cause œdema; but that, where conditions exist tending to produce œdema, the giving of salt will increase it by raising the osmotic pressure of the tissues.

Widal considered that the water retention was due to the chlorine ion of the sodium chloride. But Blum,[15] Aubel and Hausknecht determined that it was the sodium ion that was responsible. Any sodium salt could produce œdema, but, apart from sodium chloride, all salts of chlorides not only failed to do so, but some (namely, KCl and $CaCl_2$) actually produced diuresis.

Is œdema the result of albuminuria?

Clinically, there is often a close relation between the degree of the œdema and the amount of albumin in the urine. That dropsy was the result of a watery condition of the blood, following on continued loss of protein in the urine, was the view of Bright. He thought that the hydræmia favoured increased transudation into the tissues. It is interesting to see this theory revived by Epstein nearly a hundred years later. Epstein[16] pointed out that, whereas the normal protein content of the plasma is 6.5—8.0 gm. per cent., it is markedly lowered in nephrosis, usually below 5 per cent., and occasionally even down to 3.5 per cent. This decrease results in a lowered colloid osmotic pressure, which upsets the normal balance between it and the blood pressure, so that transudation occurs into the tissues and œdema results. The decrease in the blood protein occurs almost entirely in the albumin fraction; but globulin exerts only one-sixth[17] of the osmotic pressure of albumin, and, therefore, even in cases where it is present in increased amounts it has only a slight compensating action.

This explanation of dropsy in nephrosis and allied diseases is that most commonly accepted nowadays. However, there are almost as many objections to it as there are to any other theory of œdema. Chief among these are the conclusions of Linder, Lundsgaard and Van Slyke.[18] After careful research, they could find no direct connection between the degree of œdema and the level of the plasma protein. In some cases the protein was actually higher at the height of the œdema than during the stage of improvement. At times, with great alterations in the œdema, there were only trivial alterations in the plasma protein.

Epstein has put forward an attractive theory, but it has not been definitely proved.

Is œdema the result of greater avidity by the tissues for water?

This is Fischer's[3] main contention, and he explains all forms of œdema on this basis. His opinions have already been briefly discussed, and it was seen that, in his view, the production of acids was the main factor in the causation of

dropsy. Acidosis, as distinct from acidæmia, is defined as a reduction in the plasma bicarbonate. We have learned from Osman and Cook[19] that acidosis occurs in nearly every case of nephritis. In view of the suggestion that proteins swell under the influence of acid, can the œdema of nephritis be the result of acidosis? It seems unlikely; certainly there is no direct relation between the amount of the œdema and the degree of the acidosis. In cases with extreme anasarca the plasma bicarbonate may be only slightly lowered, whereas in chronic nephritis and uræmia there is marked acidosis without œdema. Fischer explained this by the fact that the blood in uræmia contains a powerful diuretic, namely, urea. Again, it has been objected that œdema fluid is entirely extracellular and not intracellular, as Fischer's theory would presuppose. Fischer counteracted by saying that the cells took up water first, but later gave it up to the tissue spaces by the process known as syneresis.

There are other even more important objections to his theory, but, in view of the success of alkalies in reducing œdema, it must be regarded as a possible explanation.

Our final question is: Is œdema the result of kidney damage?

It is well known that removal of both kidneys in dogs does not lead to œdema. In acute nephritis dropsy may occur before there is any sign of renal involvement. It is true that tubular degeneration is usually associated with œdema, but this is far from saying that it is the cause of such swelling. Mecurial poisons, which produce the most intense necrosis of the renal tubules, do not give rise to œdema. Most theories of œdema depend, not on renal damage, but on some extra-renal factor upsetting the balance between the blood and the tissues. The suggestion[20] is, therefore, that œdema is the result not of renal injury, but of some pathological changes in tissues other than the kidney. These changes are probably due to the same noxious agent which causes the nephritis, but the bulk of evidence is against the nephritis being the cause of the œdema. Bright recognised this possibility, though he did not subscribe to it himself.

NUTRITIONAL ŒDEMA

During the war there appeared in Germany, Austria and Russia many cases of generalised œdema without cardiac or renal disease. They were due to famine and under-nutrition, and recovery was complete with restoration to a full diet. It was not a matter of vitamin deficiency. With the deficient protein intake, the protein content of the blood was lowered, and Epstein cited these cases as a striking proof of his theory. On the other hand, the diet was made palatable only by excessive amounts of salt and water, and in the under-nourished this is readily retained. Elwyn[21] points out that in under-nutrition all bodily processes are working at a minimum, and he believes that the dropsy was the result of a diminution in function of the centre which regulates the rate of salt and water movement through the body.

Closely allied to the famine œdemas is the dropsy of beri-beri and that produced by feeding infants on barley water for a long period. Both diseases have in common a high carbohydrate intake, and it has been suggested that in both this may play a part in the development of the dropsy.[22]

The œdema of pernicious anœmia and cachexia is also an example of the results of under-nutrition. It may well be that in these cases the impaired oxidation of the tissues leads to an increase in the number of incompletely oxidised metabolites, and so to a retention of water.

CONCLUSIONS

It would be rash to draw any dogmatic conclusions on a subject so vast as œdema. The perusal of even a fragment of the literature leaves the student in a jumble of contradictions and hypotheses. However, it emerges that the solution of œdema probably lies in the tissues; in a further understanding of osmotic and diffusion potentials and the distribution of ions producing those forces; of the cell membrane itself, its properties and permeability, and of the action upon it of salts and hormones; and, finally, in the elucidation of the specific effects of proteins. I have tried to keep to the shallow water, for it is clear that the solution of the problem lies in the hands of the biophysicist.

But, as Gull once said, "It is always dangerous to rest under a narrow pathology." The organism is more than the sum of its electrolytes. The regulation of water movement in the body is a complex mechanism, balancing and uniting in perfect harmony the component parts of the system. F. C. McLean[23] considers œdema as a problem in physiological regulation, and Elwyn[21] lays great stress on the need for a broad outlook in the study of œdema. He emphasises the rôle of the pituitary and hypothalamus, and considers œdema as the result of an adaptation on the part of the organism to maintain the blood volume constant, and as a result of a change in the intensity of function of the central regulating apparatus. In the absence, however, of a complete appreciation of the action of this centre, we may summarise the

local factors in the production of œdema as follows :—

1. That in inflammatory and toxic œdemas, and probably in the œdema of acute nephritis, increased capillary permeability plays the greatest role.

2. That in obstructive and cardiac œdema increased capillary and venous blood pressure is probably only of secondary importance, and that the primary change consists either in increased permeability of the dilated capillaries or in alterations in the tissues following impaired oxygenation.

3. That the œdema of chronic parenchymatous nephritis is not fully explained. Salt retention, low protein content of the blood and acidosis may all play a part. It is probable that the œdema of nephritis is not due to kidney damage, but to an extra-renal factor.

4. That œdema may occur as a result of dietary insufficiencies ; in some cases a low protein intake, in others a high carbohydrate intake may be the cause.

5. That the œdema of anæmias and cachexias is possibly the result of impaired oxygenation and altered metabolism of the cells.

TREATMENT OF ŒDEMA

Œdema is an important sign of disease, and though on occasions it may be so striking as to overshadow all else in the clinical picture, it is obvious that it is only a symptom, and that every effort must be made to find and treat the underlying disease. However, symptomatic treatment has a large place in medicine. In cirrhosis of the liver with ascites, there is little we can easily do to lessen the portal obstruction or to restore the detoxicating function of the liver, but we can so modify conditions in the peritoneum that the tendency to the accumulation of fluid is diminished, and the patient relieved of an unpleasant burden. The principles in the treatment of œdema as a symptom are best brought out in cardiac and renal cases.

CARDIAC ŒDEMA

Rest and digitalis will usually reduce the lesser degrees of œdema. In heart failure with abnormal rhythm digitalis is invaluable, but even where the rhythm is normal its effects, if not striking, are usually held to be beneficial. It is good to combine with it a purine diuretic such as diuretin (10-20 gr. t.d.s.). This often gives very good, if transient, results. Theocin (2-4 gr. t.d.s.) has a stronger action, but is liable to give rise to gastro-intestinal irritation.

Where the œdema is more extensive, the diet should be made salt-free, and the fluids restricted, and this treatment is, on the whole, more effective in cardiac than in renal cases. Before fluid restriction is practised, however, it is essential to be certain that there is no impairment of renal function. If this should co-exist with œdema, the first thought should be to treat the nitrogen retention even though this may mean an increase in the œdema. Once the danger is over, the dropsy can be dealt with by methods other than fluid restriction.

Mecurial diuretics are often of great value in cardiac œdema. Guy's pill has for long been a favourite. Recently, novasurol and salyrgan, which both contain about 33 per cent. of mercury, have been extensively used and are among the most powerful diuretics known. They seem to act largely on extra-renal tissues. They are given either intravenously or intramuscularly. A test dose of .5 c.c. is first injected, and, if no ill-effects ensue, 2 c.c. is injected the next day. Diuresis is maximum in a few hours, and at times the result is dramatic. The effect, however, soon wears off. These drugs should never be used where there is impaired renal function, owing to the danger of mercurial poisoning and further damage to the kidney. They are used sometimes in chronic parenchymatous nephritis (1 c.c. twice weekly), but many authorities consider it a risky procedure. Certainly they should not be given wherever there is blood in the urine. Hæmorrhagic colitis and hæmaturia have been described following novasurol, but salyrgan is less toxic and is very suitable for cardiac œdema and ascites.

Ammonium chloride and calcium chloride are also powerful diuretics and can be used where there is no renal insufficiency. Apparently they act by causing an acidosis. The dose of both is 5-15 gm. a day. Calcium chloride is apt to produce nausea and vomiting, but ammonium chloride may be given in gelatin capsules over a period of 3-5 days, and often gives good results in cardiac œdema. It is a common practice to give ammonium chloride for several days prior to the administration of novasurol or salyrgan.

RENAL ŒDEMA

The treatment of renal œdema must depend on the nature of the renal lesion. In most cases o acute nephritis the dropsy will clear up without rigorous treatment, and this applies especially in the case of children. In chronic nephritis the œdema is often of cardiac origin. It may be unwise to treat the dropsy at all. Where the heart's action is weak, the sudden reabsorption of large quantities of fluid might easily lead to cardiac

overstrain. Again, in many cases the œdema fluid serves as an efficient backwater for the excess urea. Where there are indications for reducing the œdema the following methods may be used, though each must be modified to suit the needs of the patient and the state of the disease.

FLUID RESTRICTION

If fluid is withheld from an œdematous person, water passes out of the tissues to the blood to keep the blood volume constant. This is the basis of the treatment by fluid restriction. In general, it should be the aim to keep the fluid intake just below that of the urinary output of the previous day. In chronic parenchymatous nephritis it is usually possible to keep the intake below 1½ pints a day, for, luckily, thirst is not keen in the dropsical person, though Ovid seemed to think it was. If, however, there is danger of nitrogen retention, the water intake should be increased up to 3-4 pints a day.

SALT RESTRICTION[13]

Since the first experiments of Widal and Javal, the salt-free diet has been popular in the treatment of renal œdema, and it should always be tried, though it is only completely successful in about 25 per cent. of cases. Much depends on the patient and whether he has been previously used to taking much salt. Whereas the normal intake is about 12-20 gm. a day, it is the aim to reduce it in these cases to 2 gm. a day or less. Weakness and loss of appetite, and occasionally cramps, may develop from such deprivation, but, unlike the normal, most œdematous patients can stand it well. Salty foods, such as preserved meat, salt-water fish, salt butter, bread, jams, and most forms of cheese should be avoided. No salt, including, of course, baking powder, should be added to the preparation of the food. Soups, unless made with vegetables, must be excluded. Eggs and potatoes contain very little salt. The potatoes can be baked and eaten with fresh butter or made into a purée with a little milk. Vegetables and salads are great stand-byes, and the salads can be flavoured with oil and vinegar. Any form of fruit can be freely given, and their juices are convenient for adding taste to rice and tapioca. The Englishman can still eat his porridge with sugar and a little milk, but large quantities of milk must be avoided and its place taken by cream. Salt-free bread can be bought at many large stores, and it can be eaten with fresh butter and cream cheese. Meat and fresh-water fish can also be eaten, but if there is any nitrogen retention as well these must be excluded. Sugar, mustard, pepper, oil, vinegar and fruit juices are some of the flavoury agents used instead of salt.

HIGH PROTEIN DIET[20]

Epstein introduced this treatment for cases of chronic parenchymatous nephritis without nitrogen retention, in the belief that the œdema was due to a low protein content of the blood. He gives each day 120-250 gm. of protein, 20-40 gm. of fat and 150-300 gm. of carbohydrate. This is supplemented by large doses of thyroid, which many of these patients, with their low metabolic rate, tolerate remarkably well. Success, however, is not always the result, but it is worth trying, provided always there is no nitrogen retention. There is every justification for giving protein in these cases. It is a stimulating diet; it replaces the albumin lost in the urine, and the proteins give rise to urea, which in itself is a powerful diuretic. Indeed, McLean contends that the diuretic action of urea is the main value of this diet. He gives 10-20 gm. of urea three times a day, keeping a careful watch on the blood urea and stopping the treatment if there is any sign of much nitrogen retention. Occasionally this method is valuable, but its action is slow and uncertain.

DIURETICS

Besides urea, diuretin, novasurol and salyrgan are sometimes used in chronic parenchymatous nephritis, but their use is limited, and they are contra-indicated where there is acute disease or any impairment of renal function. Diuretin may cause a fresh hæmaturia.

ALKALIES

Osman[24] has pointed out the great value of alkalies in reducing the œdema not only in cases of chronic parenchymatous nephritis, but also in those cases of chronic nephritis where extensive œdema co-exists with nitrogen retention. He found that by this method œdema rapidly cleared up, even when it had been present for some months or years and had failed to respond to the usual means of treatment. It should only be used in cases where the plasma bicarbonate is below normal, *i.e.*, .032 molar. The patient is put to bed and in most cases given a full diet. He is then given an alkaline mixture containing equal quantities of potassium citrate, potassium bicarbonate, sodium citrate and sodium bicarbonate, flavoured with aqua menth. pip. and chloroform water. In the first day 180 grains of total alkali is given, and this is gradually raised by 60-100 grains a day until a marked diuresis sets in. At this stage the plasma bicarbonate is normal, the

urine is alkaline (about pH. 8) and contains little, if any, albumin. To reach this point it is often necessary to give 1,000 grains a day. The dose is maintained until the diuresis is over, the œdema has disappeared, and the urinary volume has returned to normal. It is then cautiously reduced by 100 grains a day until a point is reached at which any further reduction leads to a return of the symptoms. This amount may have to be kept up for a long time afterwards.

This method completely reduced the œdema in 80 per cent. of cases,[25] but is accompanied by serious risks if not under supervision and without the guidance of bicarbonate estimations. It always increases œdema at first, and tetany occasionally supervenes at the point of maximum dose. It is essential to reduce the dose slowly, otherwise anuria may occur.

PURGATIVES AND SUDORIFICS

These are entirely subsidiary methods. Pulv. jalap. co. and magnesium sulphate are the best purgatives to use. Warm baths are sometimes useful in promoting the excretion of fluid, but hot-air baths are often very weakening, and it is usually difficult to get the dropsical person to sweat.

MECHANICAL REMOVAL OF FLUID

When all other means fail, this is sometimes resorted to. It may become a necessity to tap a pleural effusion or an ascites. Southey's tubes may be inserted into the limbs, or multiple incisions made down into the subcutaneous tissues. If any of these methods are used the most scrupulous asepsis must be practised, as erysipelas is not an uncommon complication. For bravery in this respect we can hold up the example of Dr. Johnson. For a long time he suffered from cardiac dropsy, and towards the end incisions had to be made into his body. With his usual defiance of pain, Johnson cut deep when he thought the surgeon had done it too tenderly. Some of his friends accused him of hastening his end—but perhaps they did not know their Johnson.

In conclusion, I should like to thank very sincerely Dr. Osman and Dr. Hampson for their great help in the preparation of this paper.

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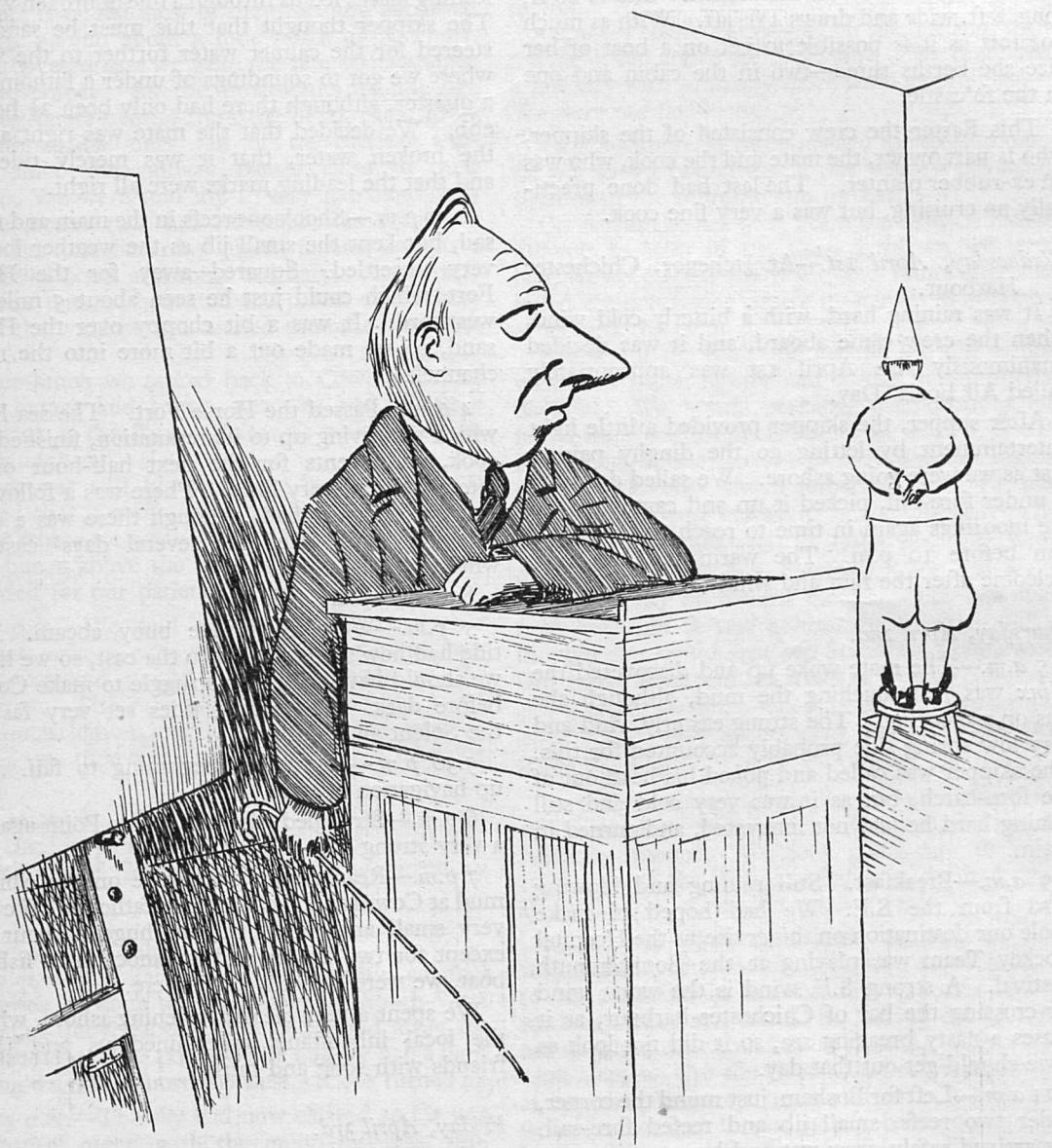
PATHOLOGICAL SPECIMENS.



No. 1—"R. D."

An Easter Cruise in the Minx

PERHAPS a brief description of the *Minx* would not be amiss, as she has not appeared in these pages before. The *Minx* is a 4-ton cutter built in 1897 on the Itchen. She is 20 ft. long, 8 ft. wide and draws 4 ft. aft. With as much comfort as it is possible to get on a boat of her size she berths three—two in the cabin and one in the fo'castle.

This Easter the crew consisted of the skipper, who is part owner, the mate and the cook, who was an ex-rubber planter. The last had done practically no cruising, but was a very fine cook.

Wednesday, April 1st.—At Itchenor, Chichester Harbour.

It was raining hard, with a bitterly cold wind, when the crew came aboard, and it was decided unanimously this April 1st was appropriately called All Fools' Day.

After supper, the skipper provided a little light entertainment by letting go the dinghy painter just as we were going ashore. We sailed down on it under fore-sail, picked it up and came back to the moorings again in time to reach the "Ship" Inn before 10 p.m. The warm fire was very welcome after the rain and wind outside.

Thursday, April 2nd.

5 *a.m.*—The mate woke up and discovered the *Minx* was just touching the mud, although she was on a mooring. The strong easterly wind and very low spring tide probably accounted for this. The skipper was called and poked his head out of the fore-hatch, but as it was very cold and still raining hard he was not interested, and turned in again.

9 *a.m.*—Breakfast. Still raining and blowing hard from the S.E. We had hoped to make Poole our destination on this cruise, as the Hospital Hockey Team was playing at the Bournemouth Festival. A strong S.E. wind is the worst wind for crossing the bar of Chichester harbour, as it causes a nasty breaking sea, so it did not look as if we should get out that day.

11 *a.m.*—Left for Bosham, just round the corner, under two reefs, small jib and reefed fore-sail. We arrived safely, very wet and hungry.

1 *p.m.*—After lunch the wind had dropped considerably and the rain had stopped; everything, in fact, looked much more promising. So, following the old saying, "First the wind, then the rain, soon you may set your kites again," we got our anchor and decided to make for Cowes.

The wind had eased round to the east, so that we didn't have to tack out of the harbour. We had an anxious time crossing the bar, as the leading marks led us through a line of broken water. The skipper thought that this must be sand, so steered for the calmer water further to the west, where we got to soundings of under a fathom and a quarter, although there had only been 2½ hours' ebb. We decided that the mate was right about the broken water, that it was merely tide-rip, and that the leading marks were all right.

2.30 *p.m.*—Shook out reefs in the main and fore-sail, but kept the small jib as the weather looked very unsettled. Squared away for the Horse Fort, which could just be seen about 5 miles to westward. It was a bit choppy over the Horse sand, so we made out a bit more into the main channel.

4 *p.m.*—Passed the Horse Fort. The sea here, which was living up to its reputation, finished the cook, and events for the next half-hour or so interested him very little. There was a following sea, but not very bad, although there was a considerable swell after the several days' easterly winds.

Set the square sail.

5 *p.m.*—West Sturbridge buoy abeam. The tide had now started to set to the east, so we knew we should have a bit of a struggle to make Cowes before dark. The spring tides set very fast in the Solent and Spithead.

5.30 *p.m.*—Light just beginning to fail. Put up navigation lights.

6 *p.m.*—Struggled past Old Castle Point against a very strong east-going tide.

7 *p.m.*—Reached an anchorage on the Shrape mud at Cowes and anchored in 3 fathoms. We felt very small and lonely in that huge harbour as, except for two barges and an unoccupied fishing boat, we were the only craft there.

We spent a very pleasant evening ashore, where the local inhabitants entertained us and their friends with song and music.

Friday, April 3rd.

8 *a.m.*—Blowing half a gale from the north, which made our anchorage extremely uncomfortable, as Cowes harbour is completely exposed to northerly winds. We were pitching at anchor, and decided it was no place for three misguided men on holiday, and that we should be much more comfortable in the Medina.

10 *a.m.*—After one of the cook's famous breakfasts, we got away under two reefs, reefed fore-sail and small jib, and sailed up the Medina towards Newport. Once past the floating bridge we were in calm water, and felt much more comfortable after the disturbing motion outside.

We had a very pleasant sail up the Medina, although it rained most of the time, and anchored opposite an inn about a mile north of Newport. We discovered that we were the first visitors since last November. As the inhabitants do not like carrying home parcels from the town, they throw the unbreakable ones out of the carriage window, since the railway passes close to their house. We were told by a very garrulous lady of the house that her husband was returning home late one Saturday night, having bought a pair of sea-boots and some crockery. Apparently he threw one sea-boot and the parcel of crockery out of the window and carried the other sea-boot home !

After lunch we tacked back to Cowes, passing many barges and tramp steamers and taking a good look at the King's *Britannia* which had just been launched.

As it was still blowing very hard outside we decided that it would be more pleasant and safer to stay where we were, so we tied up to one of the town buoys above the floating bridge. We were rewarded for our patience.

11 *p.m.*—We had met some local weather prophets ashore, who said that the weather was improving and would probably remain so for 24 hours. The rain had stopped and the wind was much lighter, coming from a little west of north ; we therefore decided to make a start for Poole.

12 *midnight*.—Cast off from mooring and got away under two reefs, fore-sail and small jib. Tacked out of Cowes harbour. Wind, north by west.

Saturday, April 4th.

2 *a.m.*—After tacking down the main channel of Cowes harbour we made over to South-West Brambles buoy, tacked ship and stood away for the Needles. The tide was fair and we had a light leading wind from north by west. Cook turned in.

3.15 *a.m.*—The sky had now cleared and it was a beautiful night, with the moon just past full. Passed Solent Banks buoy to starboard.

3.30 *a.m.*—Passed a Union Castle motor ship bound east.

4 *a.m.*—Hurst Point abeam, with the moon showing the Needles very clearly. The sea was almost like a mill-pond with the off-shore breeze.

4.30 *a.m.*—Passed between the two Needles buoys and set course west by north for Poole, 13 miles distant. The tide was causing a very choppy sea outside the Needles, and the *Minx* was dipping her long bowsprit under almost every wave. This didn't last long, and we were very glad when we settled down to a much easier motion.

5 *a.m.*—Dawn. Very grey on the horizon, with a tinge of red above the cloud-line. We predicted a fine day with probably more wind and rain later. We were not far wrong.

6 *a.m.*—Sighted a three-masted topsail schooner far out to sea bound east. She made a beautiful sight with the morning sun on her.

On account of her wide beam the *Minx* is rather difficult to steer in the short head sea we now had, so we pegged the helm, and found that she sailed a much better course by herself than if one of us took the helm.

Shook out the reefs and set the big jib, as the wind was much lighter and it was now properly daylight. We were, perhaps, over-cautious in not shaking out the reefs before we started, but it is most unpleasant having to reduce sail at night, especially if only one member of the crew has sailed on the boat before.

7 *a.m.*—We managed to wake the cook with difficulty to cook our breakfast. He had slept soundly since we cleared Cowes. The sun was now out, and it was a beautiful morning. We thought we could just see Standfast Point, with Old Harry Rock and his wives.

9 *a.m.*—The *Minx* has now steered herself for three hours, and dead ahead we could see the Poole Bar buoy.

9.45 *a.m.*—Passed Poole Bar buoy to starboard and started to tack up the Channel, which is perfectly buoyed. We took good care to keep well clear of the Training Bank, as we had read about the loss of the *Heroine* last year.

11.45 *a.m.*—The first ebb was now at full strength and we were losing ground on each tack, so we anchored in five fathoms opposite No. 7 starboard buoy and turned in, leaving the cook to tell us when the second flood started. Either the cook slept or else the flood was not perceptible ; at any rate, when we again started at 3 p.m. we went further out to sea, nearly back to the Bar buoy. The wind finally came fair, and we eventually passed Sandbanks and anchored opposite the Haven Launch Company, in company with a very elegant 12-tonner which had passed us under power on the way in. They had left Yarmouth about six hours after we left Cowes. It shows what a motor will do for you !

Sunday, April 5th.

9 *a.m.*—Crew awoke and found a half-gale blowing from the west and raining hard. Later in the day we were visited by two members of the hockey team and took them for a sail towards Poole. The cook produced a very fine lunch, which was much appreciated. It is wonderful how an otherwise rather tasteless tin of salmon can be made really delicious in skilled hands.

On our return we picked up a mooring close to our previous anchorage. We did this as the tide ebbs very fast in Poole, and as we were contemplating starting before dawn next day we did not want the labour of getting up two anchors. The wind dropped considerably during the day.

Monday, April 6th.

2 *a.m.*—The skipper and mate were wakened by the cook, who had stayed up as he was to take no watch. He had prepared a very welcome cup of tea and some sandwiches to eat during the night.

Our plan was to leave Poole on the first ebb and reach the Needles at the beginning of the flood, so as to carry the east-going tide as near Chichester as possible, always providing the god of wind was kind to us.

At this time there appeared to be no wind at all, though there was probably a little outside. As the pilots ashore had warned us of the east-going set of the tide off Sandbanks, we decided to wait, as we could see there was plenty of wind coming.

3 *a.m.*—By this time all sails were ready and the navigation lights burning. We had taken two reefs in the mainsail and brought out the small jib, as it looked as if we should have plenty of wind by the morning.

A little breeze had got up from west by south, so we dropped our moorings and set off. The sky was very cloudy, but as yet no rain.

3.30 *a.m.*—Cleared Sandbanks. There was now a nice breeze west by south.

4 *a.m.*—Passed Poole Bar buoy to port, streamed the log and set course east by south for the Needles. The wind was freshening, and we had all the sail we needed and were making about four knots. It was very cloudy and visibility moderate. Mate turnedin.

4.20 *a.m.*—Sighted the flash of the Needles light-house, and steered a course to keep it just under the lee of the port bow, as there is a certain amount of northward set of the tide here.

4.30 *a.m.*—St. Catharine's Light sighted, but soon lost again in the haze.

There was now a good strong following breeze, and we had just the right amount of sail up, although we could easily have driven her a little faster with the square sail. However, this could not be set without the mate's help, so the skipper did not worry.

It was difficult steering in the following sea, with the wind dead aft.

5 *a.m.*—Log read 4.5 miles. It was just getting light. A very nasty grey dawn, with nothing but cloud everywhere and just trying to rain.

5.15 *a.m.*—Passed a guillemot flying very low and disturbed two sea-gulls at their morning ablutions.

5.30 *a.m.*—Now daylight and just starting to rain, although it soon stopped. The wind had remained at the same strength and we were going along at a fine speed.

The mate came on deck, as he found the motion too violent to sleep. Until you get used to the various creaks and bangs of a ship it is very disturbing lying below. The cook was still sleeping soundly, having turned in at 2 a.m.—but then he had the lee bunk.

6 *a.m.*—Log read 8.8 miles. We were still making good progress, and by dead reckoning should be about four or five miles west of the Needles.

7 *a.m.*—Log read 12.8 miles. Sighted the Needles buoys on the port bow. The wind was now much lighter. The tide had just begun to set to the east, so that so far we were going according to schedule.

7.25 *a.m.*—Shook out the reefs and set the big jib. The wind was by now very light; our forecast of plenty of wind did not seem very successful. We were still doing over two knots, so with the fair tide were making good progress.

7.30 *a.m.*—Passed between the Needles buoys.

7.45 *a.m.*—Set the square sail. The cook condescended to open his eyes and look at the Needles, which always make an imposing sight whatever the weather is like. They look their best with a nice high dawn light shining on them. The cook remarked that the wind had been favourable, and tried to go to sleep again. Empty bellies, however, need filling, and the skipper and mate were no exceptions. They demanded breakfast in no uncertain terms, and were served with steaming bacon and eggs and coffee about half an hour later.

8 *a.m.*—Log read 15.8 miles. We were going faster than we thought, although the wind was now very light, partly due to the speed of the tide and to the fact that we were sheltered by the island. However, the calm sea was very pleasant after the following one we had had outside.

8.50 *a.m.*—Passed Solent Banks buoy to port.

9 *a.m.*—Log read 17.4 miles.

9.10 *a.m.*—Passed West Lepe buoy. The tide was carrying us on at a grand speed, so that that part of our plan was all right, but the god of wind was not being kind as there was now very little. It is nearly always the same, either there is too much or else too little wind, so one has to make the best of a bad job.

9.27 *a.m.*—Passed East Lepe buoy.

9.45 *a.m.*—Squadron Castle abeam.

10 *a.m.*—Log read 20.0 miles. We were not pleased with our last hour's run of 2.6 knots.

10.45 *a.m.*—There was now almost a flat calm with just enough wind to give us steerage way.

11 *a.m.*—Log read 21.7 miles.

11.45 *a.m.*—We were now in a flat calm, and the wind, after giving a few final puffs, died away altogether and left us. The sky looked very black and ominous in the north-east, and we wondered what was going to happen next.

12 *noon.*—Log read 23.1 miles. No wind at all.

12.30 *p.m.*—A light breeze sprang up from the north-east. We took down the square sail and, as wind and tide were now both foul, we decided to make for Ryde, which was about a mile and a half to the west.

12.50 *p.m.*—Passed Sandhead buoy to port. Visibility was now very bad and we could just make out Ryde Pier about a mile due west.

1.20 *p.m.*—Wind dropped and we anchored in five fathoms about a quarter of a mile east of Ryde Pier. It was now slightly foggy and raining. Later we shifted to a berth 200 yards west of the pier in three fathoms, where we rode to main anchor and kedge.

We sent a fervent prayer to the god of wind (or should it be goddess ?), as we all wanted to be back in London by Tuesday evening.

Tuesday, April 7th.

5.30 *a.m.*—The skipper managed to wake up and have a look outside. He met an unpleasant sight, as there was a thick fog and no sign of any wind. He turned in again very disgusted.

6.30 *a.m.*—Still very foggy. The cook and skipper went for a " constitutional " up and down Ryde Pier, whistling for wind and asking all the locals we met their ideas of the prospects. They were not very cheering.

No wind came all morning, and by 12 noon the fog had lifted to allow the Portsmouth-Ryde boats to sail, so the mate, who had to be in London that afternoon, left us. The skipper and cook spent most of the rest of the day filling their already overladen bellies and made up arrears of sleep.

Wednesday, April 8th.

7 *a.m.*—A light south-easterly breeze was blowing. After a royal breakfast we got away at 7.45 under all plain sail on the starboard tack. Wind light and south-east.

9.10 *a.m.*—After tacking down Spithead we passed between No Man's and Horse Forts and set a course due east for Chichester Harbour and pegged the helm. It was a perfect spring morning, with a calm sea, enough wind to drive us along and a bright sun. We were really rather glad that we had an enforced extra day's holiday.

10.10 *a.m.*—The wind was now a little fresher and we were making a good three knots. The *Minx* was steering herself dead on her course, and presently we could see Chichester Harbour about three miles to the east.

11 *a.m.*—Crossed the bar, taking good care to keep the leading marks in line, as we had remembered our experience coming out.

While passing the Convalescent Home on Hayling Island we received a rousing cheer from the small inmates ; we might have been Columbus returning after a long cruise.

11.30 *a.m.*—The skipper gave the helm to the cook and gave him a mark to steer on. However, he had not estimated the tricks of Pilsey Sand and we promptly touched. As this was a lee shore, it meant taking all sail off her and kedging off. We were soon afloat again.

12.30 *p.m.*—We picked up our moorings at Itchenor, and so ended a delightful cruise. We were sorry the mate had missed this last sail, as it was easily the best weather we had had the whole time.

Considering the weather over Easter, we were extremely fortunate to get where we did, so we really had nothing to grumble about. We should not have kept nearly so cheerful the whole time if it had not been for the cook. He always managed to produce most tasty dishes, however low the larder had become. The *Minx* behaved beautifully the whole trip, and we were very sorry to have to leave her and return to London.

Correspondence

The Biennial Dinner

To the Editor of the GAZETTE

SIR,—At a meeting of the Staff held in November last it was decided that the Biennial Dinner should be held at the Connaught Rooms on Friday, October 16th, 1931. I am pleased to announce that Mr. F. J. Steward will be in the Chair.

Yours, etc.,
GEOFFREY MARSHALL,
Hon. Secretary.

31, Wimpole Street,
W.1.

Scarlet Fever

By G. W. Elkington Esq., M.B.

THE HÆMOLYTIC STREPTOCOCCUS

SINCE the blame has been laid on this organism, the ætiology and treatment of scarlet fever has attracted considerable attention.

In a recent school epidemic with 18 cases, a hæmolytic streptococcus type 1 was found in every case. The classical symptoms were well marked, except in two cases where the temperature did not rise in spite of a profuse rash.

The varying intensity of epidemics has been explained by the different types of the organism that have been isolated, and as in an epidemic the type does not alter, when this has been determined the nature of the outbreak can be predicted.

On this occasion the most virulent type was present and each case had a profuse rash. The other types will produce sore throats, but only one or two cases in the epidemic will have a rash.

INFECTION

The spread of infection is from the respiratory tract of a carrier, or a sufferer, or from contaminated milk. It is doubtful whether bedding, clothes or furniture play such a prominent part as has been thought in the past, and a great deal of the fumigation and disinfection now carried out at considerable expense is probably unnecessary. The source of two cases was untraced, but the remainder had all been in very close contact with infected people.

TREATMENT

Immediately diagnosis was made 10 c.c. or 300,000 units of anti-toxin serum were injected into the buttock. Serum treatment shortens the period of pyrexia and is supposed to accelerate the disappearance of the streptococci and prevent peeling. All these cases peeled a little, and one who had not received any serum on account of anaphylaxis recovered as quickly as the others and got rid of his streptococci before the fourth week. Gross complications have certainly diminished since its use, but there are many arguments against giving it indiscriminately.

COMPLICATIONS

One became a septicæmia, three had multiple arthritis and six developed cervical adenitis. Serum disease affected all, but only slightly. All recovered satisfactorily.

PROPHYLAXIS

Measures to be undertaken are isolation and inoculation of contacts and investigation of the source. The Dick test is easy to perform and reliable. A minim of the toxin is injected into the skin of the forearm and the total absence of any reaction is very definite in a negative. As it takes 24 hours sometimes to develope, contacts should be isolated while waiting the result. Positive Dick reactors can acquire an immunity lasting about two months by inoculation with 3 c.c. or 100,000 units serum anti-toxin. Of 75 contacts so treated, one developed the disease as he had been exposed two days previously; the effect of the serum was to delay the rash for four days.

The Schultz-Charlton test is a diagnostic one, and as it depends on the local blanching of the rash after the injection of a minim of the anti-toxin and takes eight hours to develop, it is of little use, as a diagnosis has probably been already made on clinical signs and administration of serum upsets the reaction. A permanent immunity by the repeated injection of Dick toxin over several weeks is too complicated for general application.

SERUM DISEASE

Those who received 3 c.c. suffered infinitely more than those who had a full therapeutic dose. In some cases the urticaria lasted three days with a pyrexia. The treatment by purgatives and calcium lactate was unsatisfactory, and rest in bed seemed to make it worse. One minim of adrenalin injected caused the rash to fade dramatically with relief of symptoms, but in a few hours it reappeared. As exercise appeared beneficial, a very successful cure was effected in one case by giving adrenalin and sending him for a sharp walk and giving copious drinks of water.

Four developed multiglandular enlargements—the axillary, inguinal and saphenous glands being enlarged and painful. Two had bilateral ptosis, conjunctivitis and dilation of one pupil. These complications of serum disease caused some anxiety in diagnosis, but they subsided in two days.

INFECTIVITY

There are no means at present of knowing when a case ceases to be infectious. A case continues to be infectious as long as the hæmolytic streptococcus can be cultivated from the throat, and it has been found that a patient nursed at home loses the

streptococci much earlier than one nursed in a hospital. Although on discharge after one or two months' detention the bacteriological report may be negative, if the patient catches a cold he may become infectious again, even after several months. It is impossible to make a rule to satisfy the public.

It is in the interests of the patient that his stay in hospital should be curtailed as much as possible, as the quickest way of getting rid of the germs is by leading an active outdoor life. Prolonged stay in hospital exposes him to the possibility of re-infection and developing into a chronic carrier.

One must remember that the public still regard scarlet fever as a six-weeks' disease, and scales as infectious, and return cases as due to carelessness on the part of the doctor.

When the type of organism is mild, a four-weeks' detention in hospital is ample, but with the virulent type the full six weeks should be adhered to and discharge backed up by a certificate from a bacteriologist that the throat is clear. The relations should also be warned about taking reasonable precautions against close contact in the event of colds and also of the possibility of a return of infectivity. In the healthy and robust convalescent the degree of infectivity must be very slight as compared with the catarrhal subject, and in giving a prognosis on this point it is safer to judge by clinical appearances than by bacteriological reports, whatever they may be.

Reviews

The Essentials of Histology. By EDWARD SHARPEY-SCHAFER. 12th Edition. Published by Messrs. Longmans, Green & Co. *Price* 15*s*.

THIS is the twelfth edition of Professor Schafer's well-known book. It has been revised throughout, and numerous illustrations added. The chapters on Hæmapoiesis and Blood Cells, which have been much enlarged and improved, are particularly good. A coloured illustration of the blood cells by the late Mr. Richard Muir is a useful addition. Many of the illustrations are of a high order of excellence, and for this reason it seems unfortunate that certain rather inferior ones should have been included. The transverse section of the vermiform appendix illustrated on page 390 appears to show little more than the thickness of the wall relative to the size of the lumen.

The text generally is good, but here again it is a pity that such organs as the appendix, gall bladder and uterus, the histology of which is of so great interest to the medical and physiological histologist, should be so poorly described and illustrated.

The interesting manner in which an endeavour is made to correlate microscopical appearances with function will recommend this book, not only to the student of histology, but also to the physiologist and pathologist.

An Introduction to Pharmacology and Therapeutics. By J. A. GUNN. Published by the Oxford University Press. *Price* 5*s*.

PROFESSOR GUNN wrote this book in order to provide the beginner in pharmacology with a concise survey of the subject, so that the lecturer in pharmacology might assume that his hearers had some previous knowledge, and treat his subject in a more advanced, or at least more interesting manner. This book was not intended to provide a summary of the whole of pharmacology, and for this reason it should not be thought sufficient in itself for examination purposes, for so short a book, which has nowhere sacrificed interest to compression, cannot be complete, and there are many matters which are of importance medically, and others which form favourite examination questions, which are not treated at sufficient length.

The print is clear and the paper good, and, further, the price is such that many beginners will find it well worth their while to buy this book in addition to some other standard text-book. On reading it, one can marvel at the amount of useful information set down so interestingly within so short a space.

An Introduction to Practical Bacteriology. By T. J. MACKIE and J. E. MCCARTNEY. 3rd Edition. Published by Messrs. E. & S. Livingstone.

THIS book was intended for use in association with a series of demonstrations in which the various apparatus used in bacteriological work and type cultures are provided, and for this reason the book has not been illustrated, with the exception of a few diagrams. The cultural and morphological characters of the various micro-organisms are concisely described and the common serological methods carefully detailed. A helpful chapter on the principles and practice of dark-ground illumination work is included, while the chapter on the filterable viruses is particularly clear.

Those who desire to know something of what they are doing at the beginning of a course of bacteriology, when the practicals are often in advance of the lectures, will welcome this book. It contains a large amount of useful information, which is well arranged, so that any subject can be referred to without loss of time.

Practical Anæsthetics (Hadfield). 2nd Edition. Published by Messrs. Baillière, Tindall & Cox. *Price 7s. 6d.*

ANÆSTHESIA is becoming more and more an exact science, and more and more are its methods becoming subtler, its apparatus more complicated. Between the anæsthetist of the old days, who was well equipped when he had a mask and a bottle of chloroform, and the present-day practitioner who has at his disposal a multitude of methods and a host of machines, there lurks a wide gap which is only bridged by the one common possession, courage.

No book can teach one to give anæsthetics, no book can inspire one with the essential self-confidence; the most that a book can do is to acquaint one with the intricacies of the various techniques.

This edition has been rendered most valuable by the inclusion of the most recent developments in anæsthesia—avertin is discussed, but the omission of such drugs as sodium-amytol and pernoctan is deliberate, and, we think, well justified. The man who reads a book of this description is the senior student or the recently qualified practitioner, whose hands are better guided in the direction of good ether anæsthesia rather than down the more spectacular and unknown road of the barbitones.

Quite a large amount of space is devoted to closed methods of ether and ethyl-chloride administration, and it would be interesting to know exactly how great a popularity is still enjoyed by devices such as a Clover's inhaler amongst a generation of anæsthetists who regard cyanosis as the first stepping-stone to the Coroner's Court.

The layout of the book is excellent, the English is agreeable, the illustrations adequate. We would recommend it to any intending and hesitant purchaser as being well worth its very modest price.

Diagnosis and Treatment of Venereal Diseases. By DAVID LEES, M.R.C.P., F.R.C.S. Published by Messrs. E. & S. Livingstone. *Price 15s.*

THIS book's contents cover the immense range of the subject very neatly, clearly and practically. Besides the treatment of the chancre and its differential diagnosis, it deals quite fully with syphilis of the nervous system, cardio-vascular system and of the skin. The use of the cerebro-spinal fluid in neuro-syphilis, malarial therapy, and detailed figures as to dosage with arsenical compounds are given so as to be of some use in guiding people who wish to gain experience in these subjects.

There are eight coloured plates illustrating dermatological lesions and 84 photographs, all of which are well worth study. The only criticism one could fairly make is a criticism of all text-books in that the syphilides, for instance, are so dramatically pictured as to lead the inexperienced to believe that the disease always presents itself in such lurid form.

Concise Law and Practice of the Surgical, Medical and Dental Professions. By WILLIAM FINDLAY. Published by Messrs. Sweet & Maxwell, Ltd.

THIS book contains within its one hundred and fifty odd pages a wealth of exact and valuable detail. The author, who is to be complimented on the arrangement and writing of the book, has had over 40 years' experience, the wealth of which is reflected in these terse pages. It is difficult to make a book such as this interesting to read, but he has succeeded by the omission of all unnecessary padding such as is found in the larger text-books on the subject. It is a book which should be found on the desk of every practitioner, as it will frequently prove invaluable to him in the solving of those many and annoying questions that arise at such unexpected moments in a professional career.

The History of Medicine—A Short Synopsis. By BERNARD DAWSON. Published by Messrs. H. K. Lewis & Co., Ltd. *Price 7s. 6d.* net.

THE hundred and fifty pages of this slim volume are devoted to an attempt to present the most salient features in the course of medicine through the years. That the author has succeeded in this almost impossible effort can be believed only by reading the book, which we recommend heartily. He has pointed his remarks very aptly with a few and very well-chosen illustrations, and the only weakness we can find in the book is the unavoidable terseness and summary description of certain great historical figures with whom we would be loath to dally.

Sixty Centuries of Health and Physick. By S. G. BLAXLAND STUBBS and E. W. BLIGH. Published by Messrs. Sampson, Low, Marston & Co., Ltd. *Price* 1 guinea net.

THIS is another book devoted to the same subject, and, while being far fuller in detail of text and wealth of illustration, it suffers from

what is to us, as medical men, the disadvantage of being written for medical and lay people alike, so that the former's interests are rather deserted in favour of satiating the latter's thirst for knowledge. For this reason it is a book heartily to be recommended to a non-medical reader; it is packed with information, and its contents are arranged in a very easily digestible form. There is one particularly delightful transcription of the case reports of Ancient Egypt, where diseases are classified as (*a*) an ailment to be treated, (*b*) an ailment to be contended with, (*c*) an ailment not to be treated. Modern medicine could acquire much in honesty by adopting such a code, and by admitting that there do exist cases "to be contended with" as distinct from "to be treated."

The illustrations are extremely profuse and well reproduced, but a little carelessness in their arrangement detracts somewhat from their value.

Clinical Chemistry in Practical Medicine. By STEWART and DUNLOP. Published by Messrs. E. & S. Livingstone. *Price* 7*s.* 6*d.* net.

THIS is a rational and praiseworthy attempt to present the average student with a concise mass of knowledge on that vast and baffling subject—biochemistry, the roots of which ramify in a manner so profuse and so bewildering that the one valuable fact is liable to be overlooked in the hasty perusal of quantities of advanced and valueless research. The reader of this book need have no fear that his attention will be led astray in this manner; the facts are clearly and simply stated, the biochemical methods shortly but adequately described; and it is a book invaluable for reference. The only criticism that we would like to make is that the picric acid method of blood sugar estimation is the only one described. Are we to assume that it is recommended solely for its simplicity or has its use superseded in the author's hands the use of other methods?

The Physical and Radiological Examination of the Lungs. By J. CROCKET, M.D. Published by Messrs. Lewis & Co., Ltd. *Price* 16*s.*

THIS book gives a very full account of different methods of examination of the lungs. The general arrangement in chapters is very well ordered and easy to follow. Physical signs of percussion and auscultation are treated very fully, with a wealth of historical detail. Many of these signs are not of practical use, but the common ones are dealt with admirably. Most of the X-rays are good, but some are too small to be of value.

The technique and complications of lipiodol injections form one of the best chapters in the book. The publishers are to be congratulated on the binding and print.

Handbook of Diets. By ROSE M. SIMMONDS. Published by Messrs. Heinemass & Co., Ltd. *Price* 7*s.* 6*d.* net.

THIS book is a valuable contribution to this subject, so easy in theory and so difficult in practice. It is essentially a work to keep for reference, and the mass of accurate diets and recipes will make it valuable to all those in any way interested in the treatment of diabetes.

Manual of Surgery (Thomson and Miles). 8th Edition. Volume I (General Surgery). Published by Messrs. Humphrey Milford. *Price* 12*s.* 6*d.* net.

IN this edition, Professor Wilkie has lent assistance in revising and adjusting some of the views in the older editions. The book itself is one of the standard text-books of surgery, and this edition maintains the singularly high level of its predecessors. If we would want to criticise, in this and the other edition the print is a little too small and closely set for easy reading, and this is a great disadvantage in a volume of this nature, where the interest of the subject, enhanced as it is by the author's skill, tends at times to become a little dulled. The illustrations are excellent and the general make-up of the book a strong inducement to the hesitating purchaser.

Abdominal Pain. By JOHN MORLEY. Published by Messrs. E. & S. Livingstone. *Price* 10*s.* 6*d.* net.

THIS is a thoughtful study devoted to the genesis of pain in abdominal diseases, and the author has dealt very fully and carefully with the many theories on this subject. He stresses the great importance of the somatic nerve paths in those conditions where localised rigidity and tenderness betray on the abdominal wall some underlying intro-abdominal inflammation. The author bases a large amount of his conclusions on data obtained by abdominal operations performed under local anæsthesia of the abdominal wall, and a perusal of this book will suggest many ways of amplification and justification of his views by experiments possible to most of his readers. It is a book well repaying careful study, and we would advise all those interested in the physiology or surgery of the abdominal viscera to purchase it.

Hospital Information, etc.

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Notice

DEMONSTRATOR OF OPERATIVE DENTAL SURGERY

Applications are invited for the Post of Demonstrator of Operative Dental Surgery, for attendance on Tuesday, Thursday and Saturday mornings, for the period May 26th to September 30th, 1931. Salary to be at the rate of £60 per session per annum.

Applications should be lodged with the Dean, in the Medical School Office, not later than 12 noon, on Friday, May 22nd.

Papers by Guy's Men

L. R. Broster. Review of sex characters. *B.M.J.*, 1931, i, 743.

S. W. Charles. Temporo-mandibular joint. *Dent. Record*, 1931, li, 230.

C. H. Fagge. Treatment of recent simple fractures of long bones. *B.M.J.*, 1931, i, 735.

G. B. Palmer. Misleading photographic appearances. *Dent. Record*, 1931, li, 155.

Appointment

J. T. Irving, M.R.C.S., L.R.C.P., Lecturer in Physiology, Bristol University.

Births

FOURAKER.—On May 3rd, 1931, at Oakdene, Woodcote Grove Road, Coulsdon, Surrey, to Edna, wife of Edgar H. Fouraker, L.D.S., R.C.S. (Eng.)—a son.

GALLAGHER—On May 1st, 1931, at Talfourd House, Mount Pleasant Road, Hastings, to Dorothy (née Hammick), wife of C. E. Gallagher, M.R.C.S., L.R.C.P., F.C.S.—a son.

EDS. { P. M. F. B. / P. V. R.

GUY'S HOSPITAL GAZETTE

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PASSIM

NOW, when the Derby is approaching fast and Ascot is not so far away, there is amongst the general public a sudden exacerbation of the gambling spirit. Mild men in bowler hats, who never in their lives before have contravened a by-law, are to be detected smuggling sweepstake tickets under disguise as Dutch cheeses into Ireland. Everyone feels it incumbent upon him to have a mild flutter at this time of the year; and many and varied are the types of people who bet and participate in sweepstakes now who would not be seen within the precincts of a racecourse at any other time of the year, and who, quite probably, have never been on a racecourse before in their lives. Of this great sowing of easy money, who reaps the harvest? The bookie and the tote; and both are undeserving of it.

We see that Sir William Davison's attempt to introduce a Bill into Parliament legalising lotteries for hospitals has been defeated, and we see that the authorities are pursuing with punitive anger anybody who attempts to sell an Irish Sweep ticket in England.

Of the rights and wrongs of the moral question involved in sweepstakes we are not judges; we dare not pronounce judgment on such matters. On the economic side of the problem we are more prone to express an opinion, as it is this aspect which especially interests us as medical men.

There are those who believe that all hospitals should be financed by the State, and they refuse to give anything to the voluntary hospitals on that account; there are those who refuse to give to hospitals on the grounds of vivisection being practised therein; there are those who accuse the hospitals of having always been in debt, and of always being in debt no matter what is given, and who regard hospital administration as an expensive vice, and they will not give anything on that account; and finally, there are those who, either through avarice or indifference, refuse to give anything on any account. This latter group, by far the greatest part of the community, is the fish for which is cast the bait of the Irish Sweepstakes. The other people in our list are such as possess consciences, scruples and principles, and, though we respect them for such qualities, we fear that they are the first to be alienated by any such move as has been attempted by the Irish hospitals. Not only they, but many others whose kind hearts overcome the dictates of their lean purses and who contrive to give something every year, will be dissuaded by further contribution. Will they not feel that the charge of the sick poor is left in richer and more popular hands than theirs when the upkeep of the voluntary hospitals is dependent not on the vicarious charity of a few disinterested souls, but on the gambling extravagance of the great British public?

Again, are we to suppose that once hospitals have become the foster child of the Turf, what of our other charitable institutions? The orphanages, the cripples' institutions, the blind homes, are these all to be grateful to the unknowing generosity of the public? Are we to look forward to the day when charity is unknown and only a

grudging levy on the race-horse is to be our support? It will be a sad day for the nation, and a grave reflection upon the character of its citizens, if such a thing ever were to come to pass. Surely, a few pence, given ungrudgingly from the widow's scanty store, is more acceptable than the rich man's unconscious tribute. The sentiment of the giver is more important than the size of the gift. How sad it is that hospital administration is so mundane, and that the debt of sordid pounds cannot be balanced by a credit of sentiment.

How blessed is he who makes two blades grow where one grew before; how much more blessed is our Works Department, which has converted into a plot of luxuriant grass what was the dumping spot of every ward maid, the playground of every cat. No more will we gibe at the impassioned pleas to keep off the newly-sown grass; no more will we jeer at their supposedly dilatory ways. They have made a garden of the wilderness, and we are grateful to them.

We would like to draw our readers' attention to an item in the Nursing News of this issue. An attempt has been made to form a free Lending Library for the patients, and we can assure the prospective giver that his donation will be very acceptable. Anyone who has been warded for any length of time, and has had to fall back on the usual ward literature, will know that if he is lucky enough to escape a bound edition of *Punch* for the year 1890, he will probably be forced to read "Sam, the Lighthouse Boy," or "Fanny's First Prayer"—good books enough and with a very estimable moral value; but perhaps a little indigestible at times. Any attempt to remedy this deplorable state of affairs is well worth support.

Electromagnetic Radiation

By G. Stead, Esq., M.A., Physics Department, Guy's Hospital

GENTLEMEN,—The progress of physics during the 20th century has completely revolutionised our ideas of the structure of matter, and the nature of electromagnetic radiation. The old wave theory of Huygens, Young, Fresnel and Maxwell, which was so successful in its description of many optical phenomena, has broken down completely when applied to problems of emission, absorption and scattering. Radiation, especially of short wave-length, is found to possess properties which, considered by themselves, would inevitably lead to a corpuscular theory not very different from that of Newton, and one of the outstanding problems of modern physics is to link together the wave and corpuscular properties in one comprehensive theory. Some remarkable attempts in this direction have recently been made by de Broglie, Schrodinger and Heisenberg, but the theories put forward are mathematical rather than physical in character. From the point of view of the physicist there can be little doubt that the corpuscular properties of radiation must be taken into account in any theory of the action of ultra-violet light, X-rays and γ-rays on living tissues, and therefore some account of our present knowledge of electromagnetic radiation may be of interest to those who are concerned mainly with biological and medical science.

QUANTUM THEORY

The failure of classical electromagnetic theory to account for the distribution of energy in the continuous spectrum of the light from a hot body led Planck in 1901 to put forward the revolutionary hypothesis that when energy is radiated the process is a *discontinuous* one. The energy is emitted in bundles or *quanta* of definite magnitude hn, where n is the frequency of vibration of the radiation and h is a universal constant, which is the same for all radiations and all frequencies. In 1905 this theory was extended by Einstein, who supposed that in free space the quanta travel in straight lines without loss of energy, and that absorption, like emission, also takes place only in whole quanta. A quantum of energy hn has thus much in common with a moving particle, for its energy and momentum travel in straight lines, and are not distributed uniformly over the surface of a spreading wave-front as on the ordinary wave theory.

The value of h has been determined in a variety of ways, and is about 6.5×10^{-27} erg. sec. From this we find that the quantum energy of red light is about 2.5×10^{-12} ergs, of soft X-rays about 2×10^{-8} ergs and of hard γ-rays about 10^{-6} ergs. Thus, the energy bundles of hard γ-rays are roughly a million times greater than those of red light. In other words, the structure of γ-rays is much coarser than that of red light, and the

corpuscular properties are correspondingly more striking. The various rays that constitute the electromagnetic spectrum differ not merely in wave-length, but also in the size of their quanta. To use a crude analogy, we may say that, if light corresponds to a sand-blast, γ-rays are like a rain of bullets from a machine-gun. Accordingly we find that when γ-rays pass through matter they produce much more violent effects than light. These effects are best described in terms of the modern nuclear theory of the atom.

NUCLEAR THEORY OF THE ATOM

According to the theory of Rutherford and Bohr, an atom consists of a central positively-charged nucleus, around which revolve a number of negative electrons, like planets revolving round the sun. Nearly all the mass of the atom is concentrated in the nucleus, and the orbits of the electrons are very large compared with the diameter of the nucleus. The simplest element, hydrogen, has one planetary electron, the most complex element, uranium, has 92. The number of electrons is called the *atomic number* of the atom, and represents the ordinal number of the element in the periodic table. For elements of small atomic weight the atomic number is approximately half the atomic weight. Thus, carbon and oxygen with atomic weights 12 and 16, have atomic numbers 6 and 8. The normal atom is electrically neutral, but if one (or more) of the electrons is removed, the remainder of the atom has a resultant positive charge and is called a *positive ion*, the process of removal being known as *ionisation*. If an atom acquires more electrons than the normal number a *negative ion* results. The electrons are supposed to be arranged in rings, the innermost being called the K ring, the next the L ring and so on. Hydrogen and helium have only one ring, the elements from lithium to neon have two, those from sodium to argon have three. A definite amount of energy E_K must be supplied to an atom to remove an electron from the K ring, *i.e.*, to ionise the K ring. A *smaller* amount of energy E_L is necessary for the ionisation of the L ring, and so on for the other rings. The energy required increases with atomic number, because of the increase in the positive charge on the nucleus. If one of the rings is ionised, and subsequently an electron falls into it from an outer ring, a quantum of energy of definite frequency is radiated. This corresponds to one line in the spectrum of the element. For example, suppose the K ring is ionised and an electron falls into it from the L ring. The electron loses energy $E_K - E_L$, and this energy appears as a quantum of radiation hn. For elements of medium or high atomic weight the inner rings are associated with the production of X-ray spectra, and the outermost rings with optical spectra. The outermost electrons are also probably the valency electrons of chemistry, and are comparatively easily detached.

X-RAY ABSORPTION

When X-rays pass through matter they suffer a loss in intensity which is partly due to scattering and partly to true absorption. The absorption is itself associated with the ionisation of the atom, and results in the ejection of an electron with high velocity. This is called a *photo-electron*. If the quantum energy of the incident X-ray is hn, and the electron comes from the K ring, the energy of the ejected electron $hn - E_K$, *i.e.*, a complete quantum is absorbed and its energy is used partly in ionising the K ring and partly in imparting a velocity to the photo-electron. If hn is less than E_K the X-ray is unable to ionise the K ring, and accordingly this ring plays no part in absorption. Thus, if hn is just greater than E_K the absorption is much larger than if hn is just less than E_K. This gives rise to an absorption discontinuity associated with the K ring. Similarly, there are absorption discontinuities for the other rings.

The ejected photo-electrons travel some distance before they are brought to rest, and usually ionise other atoms in their path. Ultimately they become attached to neutral atoms to form negative ions. X-ray absorption thus results in the formation of positive and negative ions, and these are responsible for the electrical conductivity produced in air by the passage of X-rays. It is this property that is used in the measurement of X-ray dosage by ionto-quantimeters. In general, the absorbed energy ultimately appears as heat. There is little doubt that the photographic and fluorescent effects produced by X-rays are also associated with the ejection of photo-electrons.

The law of absorption of X-rays is very remarkable, for the velocity of emission of a photo-electron from a given ring depends only upon the frequency n, and not at all upon the intensity of the beam of X-rays. If the intensity of the beam is diminished, the number of photo-electrons emitted per second becomes smaller, but the velocity of emission is exactly the same as before. This result is entirely inconsistent with an ordinary wave theory, and seems to lead inevitably to a corpuscular or quantum theory.

ABSORPTION OF LIGHT

Absorption of light also gives rise to photo-electrons, but, since light quanta are very much smaller than those of X-rays, only the outermost electrons of an atom can be ejected in this way,

and the velocity of ejection is very small. Quantum laws again hold, so that if hn is less than E no photo-electrons appear. The frequency n_0, for which $hn_0 = E$, is called the *threshold frequency*. Light of lower frequency (*i.e.*, of longer wave-length) than this does not produce a photo-electric effect. Again, we find that the velocity of the photo-electrons is independent of the intensity of the light, and depends only upon the frequency. For many substances the threshold frequency is in the ultra-violet, so that only ultra-violet light will produce photo-electrons, but for sodium and potassium it is in the visible spectrum, and for cæsium just in the infra-red. The photo-electric effect finds practical applications in photometry, in the production of "talkie" films, and for measuring ultra-violet dosage for medical purposes.

X-RAY SCATTERING

The scattering of X-rays is also a quantum process. The incident quantum behaves very much like a moving particle, and when it strikes an electron it may bounce off in accordance with the ordinary laws of elastic collision. If the electron is firmly attached, the quantum rebounds without loss of energy, just as a billiard ball would do after striking a fixed cushion, if it were perfectly elastic, and thus the frequency of the scattered quantum is the same as that of the incident quantum. On the other hand, if the quantum hn is large, and the impact is with an outer electron of an element of small atomic number, the electron can be regarded as almost free, and the collision approximates to one between a moving and a stationary billiard ball. The electron recoils, carrying energy away with it, and accordingly the scattered quantum has less energy than the incident quantum. Since h is constant, it follows that *the frequency of the scattered quantum is less than that of the incident quantum, i.e.*, scattered X-rays formed in this way are softer than the primary rays. This change of wave-length on scattering is known as the Compton effect. For rays scattered in a direction perpendicular to the primary beam the change of wave-length is about .025 A.U.*, and it is twice as great for rays scattered backwards in the direction from which the primary beam is coming. Thus, for a fairly hard X-ray of wave-length 0.1 A.U., the percentage change in wave-length is considerable, and for a γ-ray of wave-length .01 A.U. it is very large indeed. This increase in wave-length on scattering is of importance in deep therapy, as it materially increases the amount of energy absorbed by the tissues.

*1 Angstrom unit = one ten-millionth of a millimetre.

In general, the scattered radiation contains rays of the same wave-length as the primary, and also the softer rays produced by the Compton effect. The proportion of the modified to the unmodified rays depends on the wave-length of the primary beam. Thus, we find that scattered γ-rays are practically all modified in wave-length, whilst scattered light is all of the same wave-length as the primary beam. When Compton scattering of X-rays occurs the recoil electron has only a small velocity, and is not very effective as an ionising agent, but with hard γ-rays the recoil electron is travelling fast enough to produce a large amount of ionisation. Ionisation therefore results both from true absorption and from scattering, and the energy lost by a beam of X-rays or γ-rays in passing through matter is to a very large extent used in producing ions.

BIOLOGICAL EFFECTS

From the physical point of view it seems very unlikely that a biological effect can be produced by X-rays or γ-rays unless energy is absorbed. Such absorption is associated with ionisation, and therefore it seems likely that ionisation is the preliminary to biological action, though it does not follow that there will always be a biological effect when ionisation occurs. It does seem probable, however, that the highly complex substances present in living cells may be profoundly affected by the ionisation due to X and γ radiation. If the normal cell contains structures that are electrically charged, these charges may be neutralised by the ions, and it is a well-known fact that colloids are precipitated when the charges on them are neutralised.

Owing to the discrete nature of electromagnetic radiation, the chance of a particular atom being hit by a quantum is exceedingly small. With a beam of X-rays of average intensity any given atom would be hit about once in a million years. If the biological effect is produced by a single hit on a cell structure large compared with an atom (*e.g.*, the cell nucleus), the frequency of impact will be very much increased. It can be shown that, on this hypothesis, if radiation of constant intensity falls on a large number of cells, the number that have not been hit after any given interval of time will be determined by the same law as that which governs the disintegration of radioactive substances. That is to say, if half the cells have been hit after a time t, half the remainder will be hit in the next interval t, and so on. The time t is called the half-value period. Crowther* has pointed out that this theory would account for some of the results of Strangeways and Oakley†

*Proc. Roy. Soc. B. 96, p. 207 (1924).
†Proc. Roy. Soc. B. 95, p. 373 (1923).

on irradiation of tissue cultures. It may be noted that when this law holds it is not possible to hit every cell in any finite time.

In many cases of the action of X-rays on living cells, the survival curves have not the shape required by the above hypothesis. Thus, Crowther* found that the protozoon *Colpidium Colpoda* is very resistant to the action of X-rays, and requires a large dose to produce any observable effect. The form of the survival curve in this case can be explained very well on the assumption that a number of direct hits on the same cell structure are required to kill the cell. Crowther has calculated that in his experiments 49 successive hits were necessary to produce immediate death, and 42 to produce death after one hour. Also, the cell structure hit (assumed spherical) must have had a diameter of about 1/300 mm.

EFFECT OF DIFFERENT WAVE-LENGTHS

Turning now to the important question of the biological effect of different wave-lengths, we must note that in the X-ray region the penetrating power of the radiation increases with diminution in wave-length, and therefore, in general, the shorter the wave-length the smaller the absorption in a given material. This statement requires some qualification, for, as we have seen, at certain critical frequencies new rings of electrons come into action and cause a sudden increase in absorption. For the elements that form the bulk of living tissues —carbon, hydrogen, oxygen and nitrogen—these critical frequencies all correspond to exceedingly soft rays. If cells contain elements of higher atomic weight, increased biological effect may be expected to occur at the critical frequencies of these elements. Thus, Love,† working with nearly homogeneous X-rays, found definite selective action at particular wave-lengths, the material used being chorio-allantoic membrane of chick embryo. These wave-lengths were very close to those characteristic of uranium, bismuth and lead, and chemical analysis showed definitely that lead was present.

In the ultra-violet region the energy quanta are so small that only the outer electrons are affected, but here also critical or threshold frequencies occur, so that waves longer than a certain limit are unable to produce ionisation.

PRODUCTION OF MONOCHROMATIC LIGHT

In the visible and ultra-violet regions of the spectrum monochromatic rays are easily produced by means of a suitable prism or grating spectroscope, but the isolated wave-lengths are confined to very narrow regions. Thus, though small cultures can be irradiated, the method is not suitable for dealing with large areas of the human body. The alternative is filtration, but if a white source of light, such as an ordinary filament lamp, is used, the transmitted beam comprises a more or less broad band of wave-lengths. By filtration of light from a source that gives a spectrum consisting of a small number of bright lines, it is possible to obtain much more nearly monochromatic light. For example, the visible light from a mercury arc consists mainly of two bright lines in the yellow, one in the green and one in the violet. Wratten filters are available that will transmit either the yellow, the green or the violet, cutting out the other two. It is also easy to make up suitable filters. Thus, a solution of potassium dichromate transmits the yellow and the green, but with the addition of a neodymium salt transmits the green only. Blue cobalt glass, together with a solution of æsculin, transmits only the violet line, and chrysoidine+eosine transmits only the yellow lines. Wood's glass cuts out the visible spectrum, but transmits a number of ultra-violet lines.

PRODUCTION OF MONOCHROMATIC X-RAYS

Monochromatic X-rays can be obtained by reflecting an ordinary beam of X-rays from a crystal of rock-salt or calcite, but the intensity is low and only a small area can be irradiated. Ordinary filtration of a heterogeneous beam by aluminium of copper removes most of the softer rays, but still leaves the beam very heterogeneous. In some cases it is possible to obtain a nearly homogeneous beam by special methods of filtration. For example, an X-ray tube with an anticathode of copper, molybdenum, rhodium or palladium, operated at a suitable voltage, gives a spectrum consisting mainly of two monochromatic rays. If a filter is used of slightly smaller atomic number than the anticathode, the shorter of the waves ionises the K ring of the filter and is strongly absorbed, whilst the longer wave passes through with very little absorption. For molybdenum (atomic number 42) the proper filter is zirconium (atomic number 40), and compounds of zirconium may be used instead of the metal itself. Radiations obtained in this way are fairly intense, but are very soft for ordinary therapeutic purposes, the wave-length of the molybdenum ray being about 0.7 A.U.

For a tungsten anticathode the appropriate filter is the rare element hafnium, which can be used

*Crowther, Proc. Roy. Soc. B. 100, p. 390 (1926).
†Med. Jour. of Australia, Jan. 1929.

in the form of its oxide. The filtered radiation is less monochromatic than that obtained from molybdenum, owing to the presence of a strong continuous spectrum in addition to the characteristic lines of tungsten. The wave-length of the transmitted tungsten ray is about 0.2 A.U., and the radiation is therefore too soft for deep therapy. It is not practicable to use this special filtration method for rays appreciably harder than those characteristic of tungsten.

In the γ-ray region the problem of producing a monochromatic beam is much more difficult, as the crystal reflexion method fails except for very soft γ-rays, and special filtration is not possible. In any case it is doubtful whether monochromatic γ-radiation would have any special merit for therapy, as a large amount of scattering is bound to occur, and the dose received by the tissues would be made up of rays of many wave-lengths, on account of the Compton effect.

Why Do My Patients Leave Me?

By C. P. Theron, Esq., M.B., Ch.B. Ed.

(Reprinted, by permission, from the "Journal of the Medical Association of South Africa," November, 1930)

I HAVE taken as my subject for meditation to-night a matter which becomes increasingly puzzling and annoying as one grows older.

"Why do my patients leave me?" God knows, I don't. Yet, my young brethren, as you grow older it will begin to puzzle you, too, when, for some inexplicable reason, you see one after the other of your best patients leaving you for pastures new, and you, too, will begin to look round for a cause. You who, at the zenith of your popularity, shake your heads and say, "I am too sure of my patients, they won't leave me."

The time will come when, looking about for a cause, the first one you will pounce upon in your chagrin as the cause of the defection will be "the other man." Then you will blame the patient's friends, and you will blame circumstances; and if you can't find the cause there, you will blame the patients themselves. At last, and very occasionally, if you are of an introspective temperament and in a repentant mood, you might find an infinitesimal amount of blame attached to yourself.

Now let us look for a moment at these various reasons; it might make us less irritable, and give us a more fatalistic peace of mind when we consider the inevitability of the course of events. Moreover, perhaps it might tend to make our work less of that irksome, servile scraping and bowing to fickle patients; whilst a determination to do our best in spite of patients coming and going, and to let circumstances take their own course, will tend to make us more content, more genial, and more sociable members of our profession in particular and of the community we live in at large.

Take now the other man as a cause. This is not a reflection on any colleague in particular, but is meant to be a general inquiry into causes. For all I know, I might be "the other man" to a fellow-practitioner.

First of all you have the backbiter, of whom we luckily have none. The man who is frankly hostile and mean, the man who oversteps the boundary of all medical etiquette, who calls me an ignorant ass, and who stoops at nothing to prove to all and sundry that I know absolutely nothing and am not to be trusted with their lives.

He comes into the sick-room, sees a bottle of medicine with my label on it, opens the cork, smells it with a look of alarm, and says to the patient and all the relatives the friends gathered for the occasion: "This is rank poison; no wonder the patient can't get better, this medicine is killing him." And dramatically he proceeds to pour the offensive fluid down the sink.

Or through force of circumstances, and in deference to the wishes of the patient or his advisers, I am constrained to call him in to consultation. He enters the sick-room with a superior air and, after an elaborate ritual and pompous examination of the patient, he on principle differs from me in his diagnosis, and thereupon, with a professional air, in the full presence of everybody, treats me like a third-year medical student to a lecture on elementary physiology or veterinary pathology by analogy, thereby to impress on my patient and his friends my unfathomable ignorance and his profound knowledge.

But there is the more subtle sneak, who agrees with me and everything I have been doing, but who goes back to the patient and his friends after the consultation and tells them that he did not like to hurt my feelings, but after thinking the matter over he felt that, after all, it was his duty towards the patient to tell them that he does not think that my treatment was exactly on the right lines, and hints that it is not professional to take over a case after a consultation; but if they were to pay me off what they owe me to date, he would

then be at liberty to attend the patient and conduct the treatment on lines more conducive to the patient's recovery.

Then there is the man who, through a round-about way, through friends of friends of the patient's friends, lets it come to the ears of my patients that if he had the treatment of the case matters would have turned out otherwise. He would have done this or that operation, and the patient's life would have been saved. Or, after casual, seemingly disinterested, inquiry or pretended ignorance as to who was in attendance and what he did, stands aghast when he hears what treatment I adopted, and says in well-feigned horror : " Good Lord, you don't mean to say he did that ! " Nothing more—that's quite enough, the seed has been sown. And in a few months or a year or two I no longer see that particular patient. But I am glad to say that sort of thing is getting more rare. Whether it is that I have no more patients to lose, or whether I am getting more charitable in my views, or whether the ethical standard of the profession is improving, I don't know. I hope it is the latter ; but in my experience these occurrences are decreasing in frequency.

Next you find the frank charlatan, mostly found in the big cities, but not exclusively, with his gadgets and awe-inspiring instruments and methods of diagnosis and treatment. These I treat with deserved contempt, but still here and there a patient falls to them by the way and derives the psychological benefit which I, with my more ordinary methods, could not achieve, and he is gone. Closely allied to the charlatan is the so-called self-styled specialist of travel fame, who, by taking a six months' pleasure trip through Europe and touching at Vienna *en route*, returns a full-fledged specialist with wisdom absorbed overnight which shines forth in the towns and villages of our benighted land, and he takes a few stragglers of mine.

Then there is the man who has a legitimate pull over me, who has devoted extra study to one or other special subject, to whom, having spent time and money on perfecting himself in that special subject, I naturally take those of my patients on whose condition his particular knowledge can throw more light. But, unfortunately for me, because he happens to possess more knowledge about certain aspects of our medical encyclopædia into which it has been his privilege or perspicuity to go deeper, my patient considers him " wise above his generation " in all matters pertaining to our vast and varied domain of knowledge, and so my patient leaves me after a few lame excuses and goes to him. Of course, I attach no blame to him for my misfortune. I am just looking facts in the face in trying to answer the question I set out to answer : " Why do my patients leave me ? "

Lastly, there is the younger man, the newly arrived with his latest methods and newest knowledge, his enthusiasm and optimism born from inexperience in a profession where, to the lay mind, at any rate, experience does not count, and to whom incipient old age subconsciously suggests stagnation, fossilisation and mental degeneration. Hence the migration.

But enough gall spilt on my colleagues.

2. Let us see now how my patients' friends influence them to leave me.

First, there are the *bona-fide* patients of other doctors who have been benefited by their treatment. These, in their desire to do good to their friends, recommend them to go to their own particular doctor, who has cured them of the very same complaint. Nothing mean or underhand in that. Still—a few more gone.

Next there are the touts who are out to acquire patients for the other man by hook or crook. They stop at nothing. Although I might never have had any professional relations with them, yet somehow instinctively they know that I am most incompetent, that what I know has already been forgotten by the genius to whom they recommend my patient. And, alas ! my patient can't resist that unless " grappled to my soul with hoops of rustless steel," and even then the rivets often give. Exit a few more.

Or the ex-patient who has his knife into me because I sued him for an unpaid account, or, smarting under some actual or imaginary grievance, it is his one desire to get other patients to leave me too, and here and there he does succeed.

From the influence of friends we naturally come to :—

3. Circumstances over which I have no control.

During my absence I am sent for. Not being at home, another practitioner is called in instead, or even through a misdirected messenger I am not called. My colleague is either told, or not told, that I am the patient's regular attendant, but that I am not available.

(To be continued)

Notice

ON Alexandra Day, Wednesday, June 10th, there will be a Rose Depot at Guy's. Will any lady friends of the Hospital who can kindly volunteer to sell roses during the early hours please send their names to the Appeal Office, where their help will be gratefully appreciated.

Clinical Varieties of Dyspnœa and their Physiological Interpretation

The Treasurer's Prize Essay, read before the Guy's Hospital Physical Society by Mr. W. A. Owles

MR. CHAIRMAN and GENTLEMEN,—In a normal individual, under the normal conditions of everyday life, the movements of respiration are performed and regulated without entering into the realm of consciousness. At times, however, on account of an excessive or otherwise unusual character, they not only become conscious, but bring with them into consciousness a feeling of malaise, or even of true discomfort. To such a state the term dyspnœa is applied. Meakins[1] has given the following definition: "Dyspnœa is the consciousness of the necessity for increased respiratory effort."

When one is oneself the unhappy subject of pain and discomfort, one is apt to look upon it as an unwarranted and unnecessary affliction upon mankind by an unkind nature, but, seen from a more impersonal viewpoint, it is obvious that this is far from being the truth. Pain and discomfort are warnings of imminent danger, and as such constitute one of the fundamental protective mechanisms of the body. As a clear example of this may be mentioned the pain of angina pectoris, when the warning is of approaching cardiac failure, and the effect of the pain in reducing all unnecessary bodily activity to a minimum, and thus sparing the heart, is both obvious and dramatic.

In an exactly analogous manner the subjective discomfort of dyspnœa is a warning of approaching overstrain of the hæmo-respiratory system, and hence its occurrence in a normal individual during severe exercise is readily understandable—it is a physiological process the object of which is to protect the respiratory system as a whole from damage due to overwork. Without entering into any details, it is clear that this system is likely to be capable of undertaking more in some individuals than in others, and in accordance with this an athlete can perform far heavier work than an untrained individual without suffering from dyspnœa. On the other side of the normal, also, there must be persons whose capacity is less, and in whom the warning is needed earlier, for a biological normal is at best a mere average, and among these may be numbered the so-called neurasthenics, who, with no demonstrable pathological lesions, but rather a general inefficiency, form such a problem for medical treatment.

Grabfield and Means[2] state that in some rebreathing experiments they were aware of no increase in breathing until the ventilation of the lungs had been approximately doubled, and that they had no real discomfort, *i.e.*, no true dyspnœa, until it had been increased four- or five-fold. Accepting these as average values, it is clear that the normal individual has a considerable increase in respiration possible before any strain is felt, but this power of adaptation of the respiratory mechanism will be decreased by any abnormality present. Hence we find clinically that a patient with a slowly progressive lesion of any part of this mechanism, in its widest sense, will come to notice "shortness of breath" on less and less exertion, until finally in a severe case we may find him lying propped up in bed, motionless apart from his exaggerated respiratory movements, but none the less gasping for breath, and suffering as much distress from the mere movement of an arm as a fit person would from strenuous exercise. Here the warning is given, despite the fact that all movements have been reduced to a minimum, and a stage has been reached at which the minimal movements and activity consistent with life are in danger of straining the mechanism to its breaking point.

Between these extremes all stages are to be found and it follows that the simple observation of the metabolic level at which dyspnœa occurs may give the most valuable information as to the true condition of the patient—for example, there is no better measure of the extent of a cardiac lesion than the power of the circulation to respond to exercise, and as will later be explained, dyspnœa is one of the earliest and surest signs of failure of this response.

The story of evolutionary development from the relatively simple, undifferentiated masses of living protoplasm such as the amœba upwards to man is—as can be well seen even in the scattered forms available to the study of the comparative anatomist—one of colony formation and specialisation. With increasing size of the colonies many cells came to lie too far from the outer environment to permit an adequate interchange of gases, etc., to occur, so a circulatory system was developed in which, among other things, gases could be carried to and fro between the cells throughout the colony and those situated on the surface, where gaseous diffusion could still occur. To allow sufficiently rapid passage of gases this surface area was increased, either as in the case of fish by the development of frond-like expansions—the gills—

or as in mammals by a gland-like infolding of the surface cells to form the lungs. Any marked increase in size of the latter necessitated, further, the provision of some mechanism for sucking air in and out of these organs. Thus in any consideration of respiratory conditions in man we have to keep in mind not only the more obvious respiratory movements, but the whole chain of processes outlined above. The links of this chain are the outer air (*a*), carried as a result of the movements of the thorax (*b*), via the respiratory passages (*c*), to the alveolar epithelium of the lungs (*d*). Through these surface cells the gases pass to and from the blood (*e*), in which they are carried by the action of the cardiovascular system (*f*) to the cells throughout the body (*g*). Hence it follows that from the point of view of the body as a whole much the same result may accrue to impairment at any of these points, or to failure in co-ordination between them. Further, the cardiovascular system is an integral part of most of the other mechanisms of the body, so that the respiratory system may readily be involved in disorders of the latter. From all this it is clear that the symptom of dyspnœa, as indicative of some disorder of the respiratory mechanism as a whole, may be present in a very large variety of pathological conditions.

The varieties and interpretation of clinical dyspnœa may be studied (*a*) with reference to the precise points in which the respiratory movements differ from those of a normal individual under similar conditions, as a result of which the subjective discomfort is produced, and with reference to the physiological interpretation of these differences, and (*b*) as regards the clinical states in which the symptom may be encountered, and the specific manner in which the normal physiological mechanism has been affected in each case. I propose, therefore, to deal with the subject from these two aspects. Any full discussion of the detailed mechanism of normal physiological respiratory regulation would be beyond the scope of the present essay, and I will confine myself as far as possible to the mere statement as facts of the points of the commonly accepted teaching of the present day which are essential to a consideration of the clinical types.

Clinical types of respiratory abnormality in dyspnœa and their significance.

Compared to that of a normal individual, dyspnœic breathing may be (*a*) increased in depth but of normal or decreased rate, (*b*) increased in rate, but of normal or decreased depth, *i.e.*, rapid shallow breathing, (*c*) increased in both depth and rate, and (*d*) of abnormal rhythm. The actual respiratory movements depend upon nerve impulses reaching the respiratory muscles from the nerve centres in the mid-brain, and so in any attempt to understand the significance of these differences we must look to the mechanisms by means of which the activity of these centres is controlled. These mechanisms are two-fold—chemical and nervous.

The chemical control: the activity of the respiratory centre is altered in the same sense as the acidity of the blood reaching it, normal variations in this depending for the most part upon the carbon dioxide and lactic acid contents, and providing the chief means of adaptation of the respiration to the metabolic demands. Again, other factors remaining unaltered, any fall in partial pressure of oxygen in the blood supplying the centre similarly leads to an increase in the breathing.

Even when all nervous impulses have been cut off as far as possible from the centre, it is still capable of sending out rhythmical impulses to the respiratory muscles, and of responding to the chemical stimuli, the character of the breathing is, however, slower and deeper than normal.

The nervous control: it has been demonstrated that afferent nervous impulses arise in the lungs and respiratory passages during respiration, which act on the respiratory centre in such a manner as to tend to terminate the phase of respiration in progress at the time—the Hering-Breuer reflex—and this reflex will clearly tend to the production of short shallow respiratory movements. The normal respiratory movements result from a balance between the chemical and nervous reflexes, and will be such as under the existing conditions give the most economical type of respiration. The respiratory centre may also be acted upon by impulses from higher centres of the brain, and by chemical depressants such as morphia, etc.

Now experiment has shown that increase in the acidity of the blood tends to produce an increase in the depth rather than in the rate of the respiration, whereas oxygen deficiency has the reverse effect. Oxygen want alone is found to produce only a relatively small increase in the total ventilation. The greatest and most efficient hyperpnœa is produced by a combination of the two factors, as probably occurs normally in exercise, and this also gives the most efficient type of breathing.

The effect of oxygen want in producing a rapid shallow type of respiration is of the greatest importance clinically, for as Haldane, Meakins and Priestley[3] demonstrated in their work during the war on cases of " Disordered action of the heart," such a type of breathing is of itself a very potent cause of anoxæmia. A vicious circle is thus set up, the shallow breathing being both a cause and a result of anoxæmia. It seems that in anoxæmia

the respiratory centre is depressed, and becomes abnormally susceptible to the action of the afferent vagal impulses.

Depression or fatigue of the respiratory centre may result from other causes than anoxæmia, and the resulting shallow respiration will always aggravate the condition. Thus it may be found that in cases of dyspnœa in which the breathing is at first full and efficient, shallow rapid respirations may develop later as the respiratory centre becomes fatigued from the overwork.

Apart from shallow breathing in such conditions as have been described, it may result from an inability of the lungs to admit more air at any one time. Clearly the maximal air content of the lungs possible, *i.e.*, the vital capacity, must vary from individual to individual. The smaller the vital capacity the nearer must each breath come to the maximum—the possible increase in rate being also limited—and the sooner will the respiratory mechanism become embarrassed by increased demands. That this is true has been verified experimentally by Peabody and Wentworth,[4] and variations in the vital capacity probably form one of the major causes for physiological differences in the dyspnœa point, *i.e.*, the degree of hyperpnœa appreciated as dyspnœa by normal individuals. In pathological conditions such as pneumonia, pneumothorax, etc., the vital capacity may undergo extreme variations, and will be mentioned again when these conditions are discussed.

Again, the less the volume of each breath taken into the lungs the greater will be the effect of the so-called dead space between the outer air and the diffusing surface of the alveolar epithelium. Thus the already heavy burden upon the respiratory system will be added to, and the tendency to fatigue further increased.

In view of these facts it is obvious that the clinician must accept dyspnœa, with shallow, inefficient respiratory movements as of the most serious prognostic import, heralding the approach of respiratory failure, and he must do all in his power to break the vicious circle of anoxæmia involved, whereas when the breathing, though laboured, is still deep and full, he may rest assured that for the moment at least the respiratory centre is adequate to its task.

As the same factors will be encountered later in the discussion of the significance of dyspnœa in certain of the specific clinical conditions to be described, one may perhaps pause here to consider the exact reason why shallow breathing *per se* should be a cause of anoxæmia. Haldane, Meakins and Priestley, as a result of the work already mentioned, believe that it is due to the unequal ventilation of the alveoli which is produced. Keith[5] has pointed out that the lungs expand after the nature of a fan, those alveoli closest to the moving walls opening out first, and, as a result, in shallow respiration many alveoli will fail to be adequately aerated. Now the effect on the exchange of oxygen and of carbon dioxide of this uneven ventilation will be quite different for the two gases. The curve for carbon dioxide dissociation approximates to a straight line, so that so long as the total alveolar ventilation is unaltered over-ventilation of some alveoli can compensate for under-ventilation of others, whereas the curve for oxygen being S-shaped no appreciable compensation is possible. The effect, therefore, will be to produce in the arterial blood leaving the lungs, *i.e.*, in the mixed blood from under- and over-ventilated alveoli, a normal or even a lowered carbon dioxide content, and a lowered oxygen saturation.

Closely linked up with the questions of shallow breathing and oxygen want is that of abnormal rhythm of respiration, the final variant of dyspnœic breathing given above. Cheyne[6] in 1818, and Stokes[7] in 1875, noted the occurrence in certain pathological conditions of the type of disordered respiratory rhythm to which their combined names are now applied. The following excellent description of this type of breathing is taken from the original description by Stokes: "But there is a symptom which appears to belong to a weakened state of the heart, and which, therefore, may be looked for in many cases of fatty degeneration. I have never seen it except in examples of that disease. The symptom in question was observed by Dr. Cheyne, although he did not connect it with the special lesion of the heart. It consists in the occurrence of a series of inspirations, increasing to a maximum, and then declining in force and length until a state of apparent apnœa is established. In this condition the patient may remain for such a length of time as to make his attendants believe that he is dead, when a low inspiration, followed by one more decided, marks the commencement of a new ascending and then descending series of inspirations. This symptom, as occurring in its highest degree, I have only seen during a few weeks previous to the death of the patient. I do not know any more remarkable or characteristic phenomena than those presented in this condition, whether we view the long-continued cessation of breathing, without any suffering on the part of the patient, or the maximum point of the series of inspirations, when the head is thrown back, the shoulders raised, and every muscle of inspiration thrown into the most violent action; yet all this without râle or sign of respira-

tory obstruction. . . . The decline in the length and force of the respiration is as regular and remarkable as its progressive increase. The inspirations become each one less deep than the preceding, until they are all but imperceptible, and then the state of apparent apnœa occurs. This is at last broken by the faintest possible inspiration, the next effort is a little stronger, until, so to speak, the paroxysm of breathing is at its height, again to subside by a descending scale."

Following the clinical demonstration by Pembrey and Allen[8] that this condition is amenable to treatment by administration of oxygen, or air containing a high percentage of carbon dioxide, Douglas and Haldane[9] were led to investigate the matter, and concluded that the symptom is due to anoxæmia of the respiratory centre. The blood and tissues contain a large store of carbon dioxide, whereas they contain practically none of oxygen, so that when oxygen want enters into the regulation of the respiratory centre this fact of the absence of any store, together with the lag as the blood passes from the lungs to the brain, results in an overshooting of the regulation on each side of the required point, to use Haldane's analogy,[10] in a manner comparable to the hunting of an engine without a fly-wheel. This explanation is well supported by the observations of Pembrey and Allen quoted above, and by the fact that periodic breathing can be produced experimentally on this hypothesis to correspond to the clinical Cheyne-Stokes type.

It is possible that in certain cases, such as uræmia, the condition may develop as a result of damage by circulating poisons or toxins in the blood apart from actual oxygen want. In cardio-vascular conditions the local vascular lesions may accentuate any general circulatory condition existing. In any case the extreme gravity of Cheyne-Stokes respiration, seen clinically, will readily be recognised, and one can easily understand why it is in most cases a harbinger of approaching death. The longer the periods of apnœa the more serious the outlook, as this indicates a greater degree of anoxæmia, resulting both from and in more shallow and less efficient breathing between.

A second type of period breathing, known as Biot respiration, may be mentioned, and is encountered in cases of chronic meningitis. It is similar to the above, except that the breathing between the periods of apnœa starts suddenly and deeply, and stops again with equal suddenness, without the waxing and waning so characteristic of Cheyne-Stokes respiration. The exact cause of the condition is not known, but is very probably again the result of damage to the respiratory centre.

Finally, one must give brief mention to the effect of posture on breathing. It is an old clinical observation that in certain pathological conditions the respiratory distress of the patient is much increased in the recumbent posture, and he will, therefore, prefer sitting up in bed to lying on his back. To dyspnœa of such a degree and type that the patient must sit, or be propped upright, the name orthopnœa is given. The effect is probably due to the resistance offered to the movement of the diaphragm by the liver, etc., in the recumbent posture. Haldane[28] believes that this increases the uneven ventilation of the lung alveoli. The vital capacity is also decreased by about 6 per cent. (Christie and Beams[11]; Rabinowitch[12]), and any existing respiratory embarrassment will thereby be increased. Meakins[13] in experiments on the arterial saturation of the blood of asthmatics in the upright and recumbent postures was able to demonstrate a definite fall in oxygen saturation in the latter case.

Dyspnœa as encountered in specific clinical conditions.

For reasons already discussed dyspnœa is a symptom of so many pathological conditions that for practical purposes it is essential to attempt to classify these latter into certain main groups, in each of which the chain of events leading to the development of dyspnœa is of analogous character. For clinical purposes the following classification seems to me the most suitable, and will be adopted here. Conditions in which the causal factor lies in :—

(A) A quantitative abnormality of the inspired air.

(B) An impairment of the efficiency of the thoracic mechanism.

(C) An obstruction along the course of the respiratory passages.

(D) Some pulmonary condition.

(E) A disorder of the blood in its function as a carrier of oxygen and carbon dioxide.

(F) A relative failure of the propulsive mechanism of the blood-stream.

(G) A disorder of the controlling respiratory nerve centre.

(H) A renal condition reacting upon one or more of the above.

(I) An alteration in the metabolic activity of the tissue cells.

(J) Functional causes.

These different groups may now be considered in turn.

(A) Dyspnœa due to a quantitative abnormality of the inspired air.

Dyspnœa of this type is in most cases an experimentally produced, rather than a clinical, symptom, and as such is beyond the scope of the present essay. Here it is only necessary to mention the condition of " mountain sickness."

On going to high altitudes even a normal person will be especially liable to dyspnœa on any exertion, simply on account of the low oxygen partial pressure in the inspired air. After a residence of about 24 hours at over 14,000 feet above sea-level most persons develop a temporary condition of mountain sickness in which there is headache, nausea, vomiting, cyanosis, severe dyspnœa on the least exertion, and tendency to the development of Cheyne-Stokes respiration. These symptoms are again due entirely to the anoxæmia, and can be relieved at once by administration of oxygen. The manner in which the anoxæmia leads to dyspnœa has already been discussed. It is unlikely that the hyperpnœa will be sufficient to cause dyspnœa except during the added stress of exercise.

(B) Dyspnœa due to an impairment of the efficiency of the thoracic mechanism.

The cause of this may be :—

(1) An injury to the chest.

(2) Severe deformity of the chest, as may follow rickets.

(3) An interference with the movements of the diaphragm. This may be seen clinically where there is marked ascites, great abdominal distension (*i.e.*, in Hirschprung's disease), a large abdominal tumour (*e.g.*, the spleen in spleno-medullary leukæmia), or even in cases of severe gastric flatulence.

(4) A lesion of the efferent nerve path to the respiratory muscles (*e.g.*, injuries to the phrenic nerve, injury or neoplasm of the spinal cord, etc.).

The reasons for the dyspnœa in this group are obvious, and do not require discussion. The extent and severity of the dyspnœa must clearly vary within very wide limits, in accordance with the degree of the lesion.

(C) Dyspnœa due to an obstruction along the course of the respiratory passages.

This obstruction may be continuous or spasmodic.

(*a*) Dyspnœa due to continuous obstruction. It is clear that a simple mechanical blockage of the respiratory passages may arise from very many and varied causes, and it will be possible here to do little more than present in tabular form the main clinical conditions in which dyspnœa may thus result. In most the dyspnœa will only be a part of the clinical syndrome, the rest depending on the underlying primary cause. Also the obstruction may not be the only cause of the dyspnœa, as such factors as anæmia, circulatory disturbance, etc., will often co-exist.

A convenient clinical classification is with reference to the level at which the blockage occurs.

(1) Outside the body, as from the resistance imposed on the air-flow by the valves of a gas mask. The effect of a high atmospheric pressure may be included here as ætiologically similar.

(2) In the mouth, naso-pharynx and pharynx.

(a) Due to an enlargement of the tongue. This is most commonly seen as the result of an acute infection—often streptococcal—when the tongue becomes swollen up so as completely to fill the cavity of the mouth. I have seen a case of repeated attacks of angioneurotic œdema, in which the swelling of the tongue, with respiratory embarrassment, was a major symptom.

(b) Enlargement of the tonsils in acute tonsillitis, and also peritonsillar abscess. It will only be in rare cases that the blockage from these causes is sufficient to cause dyspnœa.

(c) Due to post-pharyngeal abscess. This may be the result of an acute septic inflammation of the prevertebral glands in very young children, but commonly is seen in older children in association with caries of the cervical vertebræ.

(d) Due to foreign bodies which have become impacted in the pharynx.

(3) Obstruction in the larynx.

(a) Due to foreign bodies. These may be drawn into the larynx during unconsciousness, or by a sudden, often involuntary, inspiration as in coughing. On account of the violence of the reflexes set up it must be rare for an impacted foreign body to be a cause of dyspnœa, as if death does not occur at once the foreign body will either be sucked in, or coughed out. In those cases, however, where impaction does occur there is a marked tendency for the dyspnœa to become progressively worse, owing to the development of secondary sepsis and œdema.

(b) Due to œdema of the larynx, which may readily cause dyspnœa and often even death. It is usually inflammatory in nature, but cases of non-inflammatory œdema do occur.

Non-inflammatory œdema most commonly occurs as a terminal event in renal and cardiac cases with marked general anasarca. It may also occur, but very rarely, in angioneurotic œdema, and as a result of potassium iodide administration in susceptible subjects.

Inflammatory œdema, in acute catarrhal laryngitis, is rarely sufficiently marked in adults to produce any dyspnœa, but in children, with their relatively smaller larynx, it more commonly does

so. A superadded spasm, in the latter case, may increase the degree of the obstruction, and give to it a variable character, the blockage and dyspnœa being worse at night (spasmodic laryngitis).

Inflammatory œdema may be marked in laryngeal diphtheria. It may occur in cases of septic pharyngitis, etc., as a complication, in septic inflammation resulting from trauma, syphilitic, tubercular, or malignant ulceration, etc., or as a complication of various specific fevers such as typhoid, smallpox, etc.

(c) Due to blockage by membrane—usually diphtheritic, but sometimes, and especially in younger children, streptococcal.

(d) Due to a perichondritis of the laryngeal cartilages, often going on to suppuration—in syphilitic and tubercular infection, or as a complication of typhoid, etc.

(e) Due to cicatricial stenosis of the larynx. This most commonly follows the contraction and fibrosis of syphilitic, less often of tuberculous, granulation tissue. It also may result from trauma (*e.g.*, tracheotomy, or the inhalation of caustic fluids) and the perichondritis of smallpox, typhoid, etc. Much narrowing is possible, however, before dyspnœa develops.

(f) Due to tumours in the larynx. Although benign tumours such as fibromata, papillomata, etc., do occur quite commonly, it is rare for them to block the air-way sufficiently to produce dyspnœa. In cases of malignant disease of the larynx dyspnœa may develop as a late symptom.

(g) Due to paralysis of the vocal cords. This usually develops in a definite order: first, paralysis of the abductor muscles setting in, then of the tensors, then, finally, of the adductors. Unilateral abductor paralysis results in the affected cord assuming the midline position. In adults this will only cause sufficient obstruction to give dyspnœa on exertion, but in children the dyspnœa may be extreme. Bilateral abductor paralysis will produce marked dyspnœa in all cases, but this will later tend to decrease as the adductor muscles also become paralysed. This is not the place to discuss the ætiology of such paralyses, but it may be mentioned that they may occur in cases of bulbar damage (*e.g.*, in tabes), from lesions at the base of the skull (often syphilitic), from pressure on the vagus or recurrent laryngeal nerves by an aortic aneurysm, or from trauma or neuritis (often diphthetitic) affecting these nerves.

(4) Obstruction in the trachea. Obstruction due to foreign bodies, cicatricial stenosis and malignant growths may occur as in the larynx, and with the same ætiology, but on account of the large air-way inflammatory blockage is far more unlikely and very rare. Obstruction of the trachea may also be produced by pressure on its walls from without. A bilaterally enlarged thyroid gland may press upon the trachea in the neck so as to reduce its cavity to a mere slit, the so-called "scabbard trachea." Similarly, a retro-sternal thyroid, or enlarged thymus, may press upon the trachea at a lower level. An aneurysm of the arch of the aorta may press upon the trachea in the mediastinum, and finally the pressure of enlarged glands—tuberculous, Hodgkin, malignant or rarely leukæmic—may be enough to cause dyspnœa.

(5) Obstruction in the bronchi and bronchioles. Foreign bodies, inflammation with exudate and œdema, stenosis (syphilitic, etc.), epithelioma and pressure of glands or of an aortic aneurysm may produce obstruction as above. Owing to the smaller size of the air-way, however, foreign bodies are far more likely to occur at this level, and inflammatory processes, especially in the bronchioles, are more likely to cause marked degrees of blockage.

In such cases of obstruction to the air passages the dyspnœa tends to be mainly inspiratory. If the lesion is progressive, one will see a gradual development from an inspiratory dyspnœa, present only on exertion, to inspiratory dyspnœa present even at rest, and complicated later by expiratory dyspnœa also. If the obstruction is above the level of the bifurcation of the trachea, especially in children, a sucking in of the intercostal spaces, supraclavicular fossæ and epigastrium may be seen during inspiration. In laryngeal obstruction the patient usually sits bolt upright, with the head thrown back, whereas in cases of tracheal obstruction the head is bent forwards and the chin depressed so as to relax the trachea. This, however, is not an infallible rule. In laryngeal obstruction, also, there is stridor which is mainly inspiratory, whereas in tracheal obstruction it is both inspiratory and expiratory. With obstruction occurring in the bronchi, the dyspnœa may not be so marked a symptom as when the obstruction is at a higher level, unless as in capillary bronchitis it is very widespread, and all stages may be encountered down to complete absence of any dyspnœa at all.

(*b*) Dyspnœa due to spasmodic obstruction.

(1) Due to spasm of the glottis.

(a) This is in most cases the result of reflex spasm following direct irritation by a foreign body, the adductor being stronger than, and overpowering, the abductor muscles. I have seen dyspnœa persisting for two hours following an attempt to pass a laryngeal catheter. In children it may result from irritation set up by local inflammation, as in spasmodic laryngitis already mentioned, where spasm is superadded to an acute laryngitis,

with resulting attacks of acute dyspnœa, especially at night.

(b) Spasm may follow irritation of the recurrent laryngeal nerves. This is especially liable to occur in cases of aortic aneurysm, but may also result from the irritation of mediastinal neoplasms, etc.

(c) It may be due to central lesions, as in the rare laryngeal crises of tabes dorsalis.

(d) True functional spasm is stated to occur.

(2) Due to collapse of the cartilaginous framework of the larynx. This is believed to be the cause of the dyspnœa in laryngismus stridulus. This condition occurs in unhealthy, undernourished, and often rickety children under two years of age, and is similar clinically to spasmodic laryngitis, described above, except that in the intervals between the attacks of dyspnœa there is no hoarseness or other sign of inflammatory processes. The attacks are again often nocturnal, and the cyanosis and dyspnœa may be very extreme.

(3) Due to spasmodic contraction of the muscle fibres of the bronchial wall. This occurs in bronchial asthma. The resulting attacks of dyspnœa commonly occur in the early hours of the morning. They may be preceded by some aura, but often the patient suddenly wakes up with a feeling of suffocation. The dyspnœa often becomes very intense, and the subject of the attack sits upright in bed, bringing into action all the accessory muscles of respiration, and grasping the sides of the bed so as to fix his arms and aid in this process. The dyspnœa differs from that of the classes of obstruction already discussed in that it is mainly expiratory in character. Inspiration is short, but expiration much prolonged, and there is marked wheezing. Two types may be separated, the first in which the bronchial constriction is more or less generalised throughout the lungs, the other in which it is localised to certain areas. The interpretation of the clinical picture is rather different in the two cases, and will be discussed below.

The essential factor in all these cases of obstructive dyspnœa is the resistance to the air flow, and the effect of this has been studied in the experimentally pure form by Davies, Haldane and Priestley.[14] They found that with low resistances, and at a low metabolic level, the result was breathing increased in depth and decreased in rate, along with an increased carbon dioxide tension in the alveoli and blood. With an increased resistance, or with increased demands, fatigue suddenly set in with the development of anoxæmia, cyanosis and rapid shallow respirations. Thus the vicious circle already discussed was established, and, unless broken, would soon result in death. This corresponds with the clinical findings. In mild cases there is a mere slowing and deepening of the respirations, with a decreased capacity for exercise, whereas in severe cases there is marked dyspnœa of the shallow type, which readily passes on to complete respiratory failure. Davies, Haldane and Priestley found also a very varied tolerance to resistance in different individuals, and this probably accounts for the fact that in the war certain men were quite unable to wear the ordinary gas masks on account of the extreme dyspnœa produced.

In cases of slower onset, such as blockage of the airway by neoplastic growth, syphilitic stenosis, etc., much slighter symptoms are produced by a given degree of obstruction than in an acute case, on account of the adaptation of the body to the altered conditions. This adaptation is much the same as that occurring during acclimatisation to life at high altitudes, but cannot be discussed further here.

In asthma of the generalised type, and also in widespread bronchiolitis, the effect is one of general blockage, as in the above, accentuated by a decrease in the vital capacity of the lung which has been shown to occur in asthmatics. There is both anoxæmia and carbon dioxide retention, as shown by the deep cyanosis which develops and the passage of acid urine.

In cases of asthma with localised obstruction, and in the other cases of bronchial obstruction, the effect is different, being rather an uneven ventilation of different parts of the lung, with the results already discussed in connection with shallow breathing. In these cases, therefore, there will be no carbon dioxide retention, and there may be an alkalæmia due to over-ventilation as a result of the anoxæmia, along with the passage of an alkaline urine. The anoxæmia may be sufficient to cause the development of periodic breathing.

(D) Dyspnœa due to some pulmonary condition.

It is clear that almost any pulmonary lesion must produce dyspnœa, the greater the lesion the greater will be the urgency of the symptom. The following clinical types may be considered :—

(1) Œdema of the lungs.
(2) Acute pneumonias.
(3) Pulmonary collapse—pneumothorax, pleural effusion, massive collapse of the lungs, etc.
(4) Pulmonary infarct.
(5) Pulmonary fibrosis, emphysema, etc.

Acute pulmonary œdema may develop with alarming suddenness in certain cardiac and renal cases, and may be of any degree from a slight swelling of the alveolar epithelium to a condition

in which the alveolar spaces are almost filled by a serous exudate, which may even overflow into the bronchi. Intense dyspnœa and cyanosis develop in such a case, due both to anoxæmia and to carbon dioxide retention, and in many cases death occurs within a few hours from respiratory failure, the patient having virtually drowned in his own secretions. Where the œdema develops less suddenly there may be remarkably little dyspnœa, however, and this was often so in cases of phosgene poisoning during the war. Owing to the greater diffusibility of carbon dioxide than oxygen, oxygen lack was able under these conditions to develop to quite a marked extent without any carbon dioxide retention, and the breathing tended to become shallow with resulting aggravation of the anoxæmia, leading finally to respiratory failure. So insidious could be the onset that some men died from this cause some hours later, without ever having reported as casualties. Gases such as chlorine, however, produced more inflammatory change in the air passages, and the symptoms were there more obvious, corresponding to those in capillary bronchitis and broncho-pneumonia.

In acute broncho-pneumonia dyspnœa is always extreme, and there is often very marked cyanosis, with the pale skin indicative of circulatory failure. There is always a fall in the oxygen saturation of the blood, and it is stated that if the saturation is less than 70 per cent. the case will usually show a fatal termination. Along with this arterial anoxæmia there is found in almost all cases investigated a carbon dioxide retention. In a small proportion of cases, however, there is found a normal arterial carbon dioxide content.

In lobar pneumonia again there is marked dyspnœa, but usually this is not so great as in broncho-pneumonia. Thus in lobar pneumonia the respiration rate is usually 40 to 60 per minute, whereas in broncho-pneumonia it is more commonly 60 to 70 per minute. There is in lobar as in broncho-pneumonia a marked arterial anoxæmia, but as contrasted with that condition only rarely is there carbon dioxide retention.

The factors responsible in pneumonia for the anoxæmia and variable carbon dioxide retention are numerous, and must be considered as the causes of the dyspnœa present.

One of the most potent factors is inefficient ventilation of areas of lung alveoli, through which there is still a relatively good blood flow. This will occur quite generally in broncho-pneumonia on account of the associated bronchiolitis, and in the early patches of solidification and in lobar pneumonia in the areas of early red hepatisation (Gross[15]). The effect of this in causing oxygen desaturation in the mixed blood, together with a normal or lowered carbon dioxide content, has already been discussed.

In the later patches of consolidated lung, however, *e.g.*, in the stage of grey hepatisation in lobar pneumonia, Gross has shown that the circulation is so cut down that this factor of admixture of blood from under-ventilated alveoli is far less significant.

Shallow breathing is another factor in the production of the anoxæmia. It may arise from the already existing anoxæmia, which it will aggravate, from a mechanical reduction in the vital capacity of the lungs which must exist in pneumonia, from reflex limitation of the chest movements on account of pleural pain, especially in lobar pneumonia, or, finally, from toxic depression of the respiratory centre. Simple œdema may occur in some of the aerated alveoli.

The differences between broncho- and lobar-pneumonia are mainly due to the fact that broncho-pneumonia is usually secondary to inflammatory spread from the bronchioles, with consequently a much greater tendency to the obstruction of the air supply to otherwise normal alveoli, with a still persisting blood flow and a much less even distribution both in time and space of the alveolar damage, as compared with lobar pneumonia. The final result depends on the sum of the states of the lesion in different areas. In lobar pneumonia after the first few days, on account of the even progress of the lesion, the circulation is more effectively limited to functioning alveoli, and there is a more rapid improvement in the cyanosis and dyspnœa than in broncho-pneumonia.

These essentially pulmonary factors, however, are not the only ones responsible for the dyspnœa. The anoxæmia, toxæmia, etc., will also impair the action of the cardiovascular system, the circulation through the lung will be partially obstructed, the fever will raise the body metabolism, thus increasing the demands upon the respiratory system, etc., etc., so that taking into consideration the whole picture it is scarcely to be wondered at that the final degree of dyspnœa may be very extreme.

The variability of the effects of oxygen administration on the dyspnœa can also be better understood in the light of the above facts. Hoover[16] found during the war that oxygen administration in cases of gassing, whilst decreasing the cyanosis, had little effect on the dyspnœa. This is explicable on the grounds of an increased alveolar oxygen tension increasing the rate of diffusion inwards of oxygen, but being unable to alter that of the carbon dioxide outwards through the œdematous alveolar walls. In broncho-pneumonia the effects of oxygen administration vary greatly. Oxygen administration is able to help decrease the degree of

arterial oxygen desaturation when this is secondary to shallow breathing, or to unequal ventilation of different areas of the lung, but not when it is secondary to persistent blood flow through solid, or completely isolated, alveoli, and the variability in degree of these factors will result in the different degrees of improvement found. In well developed lobar pneumonia, with parts of the lung solid and with little blood flow, but the rest relatively normal, oxygen administration would not be expected to produce any very striking effect, and this has shown to be true clinically by Hoover.[16]

As a result of the above considerations one encounters the rather unexpected fact that oxygen administration, though undoubtedly beneficial in such pneumonic conditions, is none the less definitely limited in its therapeutic powers. In view of this the gradual adoption at the present time of carbon dioxide and oxygen mixtures for administration is of especial interest. It will be realised that the effect of carbon dioxide in deepening the breathing will be of the greatest importance in producing a more even lung ventilation, and this combined with the oxygen would be expected to be far more beneficial than oxygen alone. The reports of the clinical use of carbon dioxide mixtures seem to indicate that this is actually the case in practice, and the only contra-indication to the general substitution of the therapeutic administration of oxygen by that of the mixture would seem to be any pre-existing excessive carbon dioxide retention.

The relative parts played by anoxæmia and toxæmia in the production of the respiratory and circulatory failure, etc., in conditions such as pneumonia are difficult to assess, but it is probable that simple anoxæmia is far more important than has been generally recognised. One cannot help feeling that the disappointing clinical results obtained by the use of antitoxins in many conditions may be due largely to the fact that toxæmia is often no more than a convenient refuge in which to hide our ignorance of the true and more physiological disorders actually responsible for the clinical condition.

Acute pneumothorax.—At the onset of this condition the patient suddenly develops the most intense dyspnœa, with rapid shallow breathing, which may go on to complete respiratory failure and death. This dyspnœa is due to the sudden elimination of the ventilation of part of the lung, through which blood is probably still freely flowing, together with a complete upset of the intrathoracic pressure relations, acting on the heart, etc. If death does not occur, recovery takes place during the course of a few days to a state of chronic pneumothorax, or this may develop insidiously. In this condition the blood flow through the collapsed lung is cut down to a low value, and the effect is merely that of the reduction of the vital capacity of the lungs to one-half. The essential symptom, therefore, is dyspnœa on exertion, with little or none at rest. Similar conditions exist in hydro- and hæmato-thorax, etc.

Post-operative collapse of the lungs.—During the first few days following an operation, especially if it involve the upper abdominal cavity, there may develop dyspnœa, with pain in the chest and signs of solid lung at the bases. This was formerly diagnosed as post-operative pneumonia, but it now seems to be primarily at least a collapse, due to impaired movement of the diaphragm, blockage of the bronchi and subsequent absorption to the trapped gases. It is mentioned here mainly on account of the recent administration of oxygen and carbon dioxide mixtures both as a cure and as a prophylactic for this condition. If the above hypothesis be correct as to the causation of the condition the rational of this treatment is obvious, and clinical results seem so far satisfactory.

Pulmonary infarct.—The characteristics of this condition are sudden pain, with intense dyspnœa and cyanosis, which may be of any degree to almost instantaneous death. As well as the factors of elimination of part of the functional lung, and circulatory blockage, reflex irritation leading to shallow respiration probably further accentuates the condition.

Chronic pulmonary disease : emphysema.—In patients subject to this pulmonary lesion there is often no dyspnœa at rest, but it readily develops on exercise. The lungs here show (*a*) a breakdown of the alveolar walls, with a resulting decrease in surface area ; (*b*) thickening of the alveolar walls, both of which fætors impede the passage of gas between the alveolar air and the blood ; (*c*) generalised interstitial fibrosis, which will decrease the elasticity of the lungs, and interfere with the efficient mixing of the contained air ; (*d*) a decreased vital capacity ; (*e*) an increased dead space due to bronchial atony (Hoover[17]). All these factors must combine to lower the dyspnœa point. Again the capillaries in the walls of the emphysematous alveoli are compressed and fibrosed, so that these alveoli will receive a relatively too good air- as compared to blood-supply, and the effect is that of uneven ventilation already discussed, leading to anoxæmia. Finally there may be, quite apart from co-existing circulatory lesions, a sufficient obstruction to the lesser circulation to give an increased liability to dyspnœa. It is natural, therefore, that in emphysematous patients the dyspnœa point is much reduced. Scott[18] has shown that there is an increased bicarbonate

reserve in such cases. This is clearly a compensatory change to counteract the chronic acidosis which must result from the above, but it will, by reducing the sensitivity of the respiratory centre to an increased production of acid, lead to a further increase in the anoxæmia during exercise.

Similar factors are encountered in the various other conditions of lung fibrosis, pneumokonioses, fibroid phthisis, etc.

(E) Dyspnœa due to some disorder of the blood in its function as a carrier of oxygen.

The carrying power of the blood for oxygen may be reduced in any of the clinical varieties of anæmia. It is also the most potent factor in carbon monoxide poisoning. In such conditions it is uncommon to find any dyspnœa at rest, but it develops readily on any exertion, in proportion to the degree of the anæmia. This is because the physiologically important factor is the partial pressure of oxygen in the blood, not the amount of oxygen chemically bound. To maintain this partial pressure there must be an increased blood flow to the tissues. As this involves an extra strain on the circulation a balance will be struck between the increase in flow and the degree of peripheral oxygen desaturation and anoxæmia which occur. At rest, with a low metabolic rate, this will not be of serious import, but during exercise dyspnœa will result either from the excessive liberation of lactic acid, etc., into the circulation on account of the peripheral anoxæmia, or from relative circulatory inadequacy. This will be further increased by the decreased buffering power of the blood due to the lowered hæmoglobin content.

Similar factors act in the rare cases of sulphæmoglobinæmia and methæmoglobinæmia.

Dyspnœa due to some disorder of the blood in its function as a carrier of carbon dioxide.—Under this heading are to be considered dyspnœa following exercise, in starvation and diabetes, and in renal conditions.

The normal regulation of the respiration is carried out with a view to the maintenance of a constant acidity of the blood supplying the respiratory centre in the medulla. An increase in this acidity may follow on an increased output of carbon dioxide by the tissues into the blood, on a decrease in the buffering power of the blood resulting in a higher acidity for a given carbon dioxide content, and, finally, on the presence of non-volatile acids in the blood in abnormal amount. The last two factors will often co-exist, as added acid automatically reduces the buffering power of the blood, by using up available base. In any such case increased hyperpnœa must exist during exercise if the respiratory centre responds normally, but, apart from exceptional cases, this will not be sufficient to produce dyspnœa at rest. The tolerance for, and power of adaptation to, exercise must clearly be diminished, however, and so one will find an earlier development of dyspnœa during exercise. The simplest example of dyspnœa due to acidosis is that seen following severe exercise, where it is accounted for by the presence in the blood of excess of lactic acid.

In diabetes and starvation, dyspnœa is not a symptom at rest apart from incipient coma, but occurs during exercise. Beddard, Pembrey and Spriggs[19] were the first to demonstrate that the alveolar carbon dioxide fell with increasing ketosis and could be raised by the administration of bicarbonate. There was known to be an increased acid and ammonium content in the urine, and the dyspnœa was at first attributed solely to an acidosis resulting from the presence in the blood of acetoacetic, β-hydroxy-butyric acids, etc.

This is quite possibly true for slighter degrees of the condition, but it is not generally accepted as either the sole or the main factor in all diabetics. Poulton,[20] as a result of his failure to find a correspondence between acidæmia and hyperpnœa, considered the latter as due to a toxic effect of the ketone group on the respiratory centre. In the laboured breathing of incipient coma this explanation would seem very probable, and there is some experimental work to support it, but in the milder cases in view of the relatively inefficient methods available for measurement of blood acidity the matter must be considered as still *sub judice*. That these milder cases of dyspnœa are due for the most part to an acidosis would seem to be supported by the type of breathing found, this being deep and easy, as compared with the shallow type to be expected in cases of depression of the nerve centre.

Acidosis may also be a cause of dyspnœa in renal conditions, and will be considered again under that heading.

(F) Dyspnœa due to a relative failure of the propulsive mechanism of the blood-stream.

Dyspnœa is one of the most important symptoms of cardiac disease for two reasons. In the first place it is a symptom which forces itself upon the attention of the patient at a relatively early stage of the lesion, where this is progressive, and which tends, therefore, to bring him to his doctor at a time when so much more can be done for him than when he is first seen with a failing heart and circulation. In the second place, the degree of the dyspnœa is a very reliable clinical test of the extent of the lesion present.

It is, apart from severe cases, essentially a dyspnœa of exertion, the subject is quite comfortable while he is at rest, but notices an undue shortness of breath when he climbs upstairs, hurries for a bus, etc.—and it is typically also a dyspnœa with rapid shallow breathing.

The blood stream is common ground for most of the systems of the body, and any lesion which involves it primarily must tend to involve to a greater or lesser extent all the other systems also. It is the exception, therefore, to meet a case of a pure cardiac lesion, uncomplicated by pulmonary, renal, and general tissue disorders. This fact renders it impossible to investigate the dyspnœa in cardiac cases in the same simple manner, as, for example, that due to laryngeal obstruction. It is essential to try to separate out the factors which are primarily cardiac from those due to other associated lesions, and it is failure in this attempt which has led to so many conflicting results. None the less careful research has during recent years done much to clarify the subject.

Some of the more important complications liable to be encountered are œdema of the lungs, pulmonary fibrosis and emphysema, and renal lesions.

The factors leading to the production of dyspnœa seem to be much the same in all types of cardiac disorder, if one excludes for the moment congenital heart disease, and so one may discuss them all in a general manner.

Without going into details of the extensive work which has been carried out on the subject, it may be stated that it is now generally accepted that in cases of uncomplicated heart disease there is no arterial anoxæmia. Thus Fraser[21] in a complete series of investigations found that the percentage saturation with oxygen of the arterial blood came within normal limits, unless there existed a complicating lung lesion, gross heart failure with œdema of the lungs, or the subject were debilitated or moribund. In this he agreed with the majority of former workers (Davies and Meakins[13]). Even in cases with obvious cyanosis this was still true, so that the cyanosis was then due entirely to a peripheral stagnation of the blood.

That a slowing of the circulation rate does occur in cardiovascular lesions has been repeatedly demonstrated (*vide* Lundsgaard and van Slyke[22]), expecially when a stenotic lesion is present. At rest with a fully compensated lesion there is no significant slowing, but it becomes marked on exertion, or when there is any failure of the compensation. In mitral disease the slowing may cause the most marked cyanosis, without there being any arterial anoxæmia, but in cases of myocardial degeneration the cyanosis is only marked if the heart is actually failing, or there is a co-existing pulmonary lesion leading to oxygen desaturation in the arterial blood.

In the same series of cases Fraser[21] found that there was no retention of carbon dioxide in the arterial blood in the purely cardiac cases, but only when the same complicating factors were present as led to arterial anoxæmia above. This also agreed with the bulk of former work (*vide* Meakins and Davies[13]). Direct measurements of the acidity of the arterial blood, although unreliable, have none the less supported the above (*vide* Fraser[21]).

One must therefore look to other factors than oxygen desaturation or retention to account for the dyspnœa which occurs in cases of uncomplicated cardiovascular lesions. Slowing of the circulation must of necessity result in an increased carbon dioxide content, and a decreased oxygen saturation in the peripheral blood. The carbon dioxide increase can be compensated for readily enough, given normal lungs, by increased breathing, but on account of the fact that the arterial blood is normally about 97 per cent. saturated with oxygen no such compensation is possible for the increased oxygen utilisation per unit volume of blood. A peripheral anoxæmia therefore develops —as evidenced by the cyanosis—and this Fraser believes to act on the respiratory centre itself, as elsewhere in the body, with resulting hyperpnœa or dyspnœa. This will be accentuated in exercise by the ready production of lactic acid in the muscles on account of the local anoxæmia.

In those cases in which there is a sudden slowing of the circulation, as at the onset of auricular fibrillation, the anoxæmia will lower the threshold value for carbon dioxide so rapidly that there will be a considerable lag in the elimination of excess carbon dioxide from the body, and as a result there will be very intense dyspnœa, and this is one of the characteristic signs of the onset of such a cardiac disorder.

It follows from these considerations that in purely cardiac disorders, most commonly seen in cases of mitral stenosis, or auricular fibrillation or flutter, in young subjects, no relief will be afforded to the dyspnœa by the administration of oxygen.

In the vast majority of cases seen, however, suffering from cardiac dyspnœa, there will be found associated pulmonary lesions, etc., and the dyspnœa will be further increased by arterial anoxæmia, carbon dioxide retention, possibly by acid retention if the kidneys also are failing.

Yet other factors may be involved. Thus Peabody, Meyer and duBois[23] found an increase of from 25 to 50 per cent. in the metabolic rate in

cases of uncompensated cardiac failure, and Peabody and Wentworth[4] found under similar conditions a marked decrease in the vital capacity. These factors are only introduced at a late stage. The reason for the prominence of dyspnœa as a symptom in cardiac cases is, however, obvious in view of the above facts.

In congenital heart disease due to a stenotic lesion there will be a state analogous to the above, since an actual or potential slowing of the circulation must exist. Where the lesion is one of an imperfect interventricular or interauricular septum, or a patent ductus arteriosus the effect is different. A shunt is provided in these cases by which venous blood is permitted to mix with the arterial blood from the lungs, and an arterial anoxæmia will therefore exist, with the usual resulting dyspnœa on exertion.

The dyspnœa in cases of congenital heart disease which has not gone on to heart failure is normally only present on exertion, and may be surprisingly slight on account of the compensatory changes which occur. Stenotic lesions tend to produce more marked symptoms than septal deficiencies.

Cheyne-Stokes respiration may occur more commonly in cardiovascular conditions than in any other. It may develop at the onset of some abnormal rhythm, as in auricular fibrillation, but apart from this it is only encountered in cases of advanced cardiovascular damage. Fraser, however, states that it is never seen in the final stages of congestion and stasis, but at a slightly earlier stage. It appears that for its occurrence not only is anoxæmia of the respiratory centre needed, but also a relatively efficient respiratory mechanism.

Orthopnœa is very commonly present if the lesion is at all extensive, and has been already considered.

Cardiac asthma.—This term has been applied to paroxysmal attacks of dyspnœa occurring, almost always at night, in certain cardiac cases. The subject of the attacks is usually over 50 years of age, and has suffered for some time from "shortness of breath." He goes to bed feeling quite fit, often after a day during which he has felt rather better than normal, and has therefore possibly done more than usual. After some hours he suddenly wakes up with a feeling of suffocation, as though a tight band were constricting his chest. Intense orthopnœa develops, and he sits bolt upright, or goes to an open window. The attack may pass off after a few minutes with the expectoration of a little stringy mucus, or may, on the other hand, persist for hours. In the latter case marked œdema of the lungs develops and death may occur. The condition is best treated by the administration of morphia and oxygen.

The term cardiac asthma is a misnomer, as there is no evidence of any bronchial spasm. During the attacks Eppinger, Papp and Schwarz[24] showed that an increase in circulation rate occurs, and there is also a rise in blood pressure. These facts, together with the relatively rare occurrence of cardiac asthma, point to the existence of some special causal factor, apart from those commonly present in cardiac dyspnœa. Numerous theories have been proposed, but have little to support them. Kahn[25] points out that the attacks occur in a heterogeneous group of subjects, who all show a common characteristic, a left ventricle which is hypertrophied as the result of aortic disease, coronary artery disease, essential hyperpiesia, etc. A pulsus alternans is often present, indicating a labouring left ventricle. In such persons with a relative failure of the left ventricle there is a tendency to pulmonary œdema, and the depression of the respiratory centre in sleep may be sufficient to allow some increased anoxæmia, which will start off the vicious circle. The increased blood flow may be explicable as resulting from the increased pulmonary movements acting as a blood pump (and incidentally, therefore, increasing the relative failure of the left ventricle) (Blalock, Harrison and Wilson[26]). The benefit derived from morphia may be due to a decrease in respiratory movements, reducing the latter and giving the left ventricle a chance to recover, in spite of the fact that its administration at the same time further increased the arterial anoxæmia (Fraser[21]). One must admit, however, that there is still much to be learned of the ætiology of the condition.

Dyspnœa, of the shallow type, sometimes with Cheyne-Stokes respiration, may occur in cases of shock, or collapse due to various causes, in which consciousness is not lost. Here the main factor is again a failure of the circulation, with peripheral anoxæmia.

In polycythæmia rubra dyspnœa occurs on exertion. This is sometimes explained as due to a slowing of the circulation as a result of the greater viscosity of the blood, which in this condition may contain up to 12,000,000 red cells per c.mm. It would seem more likely that both the dyspnœa and the increased red count are consequences of some unrecognised failure in the circulatory mechanism, the red cell increase being a compensatory phenomenon analogous to that in congenital heart disease. In either case the essential cause of the dyspnœa is an inadequate circulation.

(G) Dyspnœa due to a disorder of the controlling nerve centre of the respiratory system.

The effect of fatigue or depression of the respiratory centre in leading to the adoption of shallow

inefficient respirations and the establishment of a vicious circle has already been discussed.

Impairment of the blood flow to, or actual damage to, the centre may occur in a variety of clinical conditions, and will constitute a potential cause of dyspnœa. Thus it may exist in any sufficiently severe general or local cardiovascular lesion, in cases of increased intracranial pressure (as, for example, occurs in hydrocephalus, hæmorrhage, intracranial tumours, etc.), from chemical poisoning (as, for example, in cases of morphia poisoning), and possibly in some metabolic disturbances such as diabetes or uræmia.

A direct action on the centre may occur from toxins circulating in the blood in many of the conditions already described, *e.g.*, in pneumonia, but it is impossible to isolate it sufficiently to estimate its relative importance in any given case.

(H) Dyspnœa due to renal disorders.

Dyspnœa is not always a prominent symptom in early cases of nephritis, even when there is an acute onset of the disease, but always along with the general bodily disorder which must occur there will be development of dyspnœa at a low level of exercise. Thus the patient will often come to the doctor complaining of lassitude and shortness of breath. Occasionally, however, dyspnœa is one of the earliest and most marked symptoms of the onset of an acute nephritis, and this was the rule in the epidemic of nephritis which occurred in the army during the late war. The dyspnœa in these cases often cleared up within a few days.

In later cases of a more chronic nature dyspnœa on exertion may be more marked, but in most of these there are advanced cardiovascular, and often pulmonary, lesions as well, which complicate the picture. Finally, in patients who have reached the stage of uræmia there is usually marked dyspnœa even at rest. The breathing may become periodic, and the patient is subject to sudden nocturnal attacks, similar to those of " cardiac asthma " already described, and named similarly " renal asthma."

The kidney is not one of the organs directly involved in the respiratory mechanism, but its activity is very closely associated with the activity of the latter. To the respiratory mechanism, concerned as it is with the transference of readily mobile gases, falls the task of dealing with transient variations in the acidity of the blood and tissues by regulation of their carbon dioxide content; to the kidneys with their slower but more permanent regulation of the blood salts, etc., falls the task of as it were setting this mechanism as best suits the body as a whole. The main common ground of the renal and respiratory systems is the blood stream, and it is through this that they for the most part interact. As a result of all this it is at once clear that no simple relation is to be expected between a renal disorder and a respiratory symptom such as dyspnœa, and where dyspnœa is encountered in such conditions it is impossible, apart from a study of the individual patient, to give even an approximate account of the factors likely to be involved in its production.

Thus in a matter still quite a mystery, renal lesions lead to the establishment of an arterial hypertension, with increased strain on the heart, cardiac hypertrophy, and possibly failure, together with a tendency to degenerative changes in the peripheral blood vessels. Again in the acute and chronic parenchymatous types of nephritis there is commonly generalised œdema, which may involve the lungs, or in rare cases the larynx. In man the diet is usually such as leads to an excess acid over alkali production, and the kidneys are usually therefore called upon to excrete an acid urine. Failure of the kidneys will thus tend to cause acid retention, and the establishment of an acidosis, and such a condition is commonly found to exist (Lewis and Barcroft[27]). Osman[28] states that 84 per cent. of all cases of chronic nephritis show an acidosis.

All these are potent causes for dyspnœa, as has been considered earlier, so that it is clear how this symptom may result in the different cases from the varying sum of their actions.

The explanation of the acidosis as a retention phenomenon, as given above, is that generally accepted, and is probably true in more severe cases. In the milder types, however, this is not so certain, and it is possible that the acidosis is there due to a disordered equilibrium between the blood and the tissue cells—such a disorder seems to be indicated in recent work on nutritional and nephritic œdema. If this is so, one may more readily understand how some factor such as undernutrition can predispose the body to the development of an acidosis, etc., in disease, and how it came about that dyspnœa was so much more prominent as a symptom in the army epidemic.

In uræmia there are present to an exaggerated degree all the factors mentioned above, together possibly with a toxic depression of the respiratory centre. There are commonly paroxysmal attacks of dyspnœa, in which, as first pointed out by Dr. Addison, the breathing assumes a hissing character—the so-called " renal asthma." These attacks are exactly comparable to those of " cardiac asthma " already described. Less commonly true Cheyne-Stokes respiration may occur, a sign as always of a failing respiratory system.

As to which metabolite, if any, after retention by a failing kidney gives rise to the nervous symptoms of uræmia—including the symptoms due to disorder of the respiratory centre—one has no real knowledge. The acidosis alone is not sufficient to account for the symptoms, and, although alkali administration will temporarily relieve them, they will usually return eventually in persistent form. All sorts of possible chemical substances have been investigated from this point of view, *e.g.*, urea, ammonium, carbamate, methylamine derivatives, etc., but the results do not furnish convincing reading. Possibly mere absolute and relative alterations in the amounts of calcium, potassium, etc., in the body fluids may prove adequate to account for the nervous changes, but up to the present we are still completely ignorant on the subject. However that may be, it is a fact that nervous disorder does occur, and we can therefore go part way to an understanding of the clinical findings.

(I) Dyspnœa due to an alteration in the metabolic activity of the body cells.

The activity of the respiratory system is normally regulated exactly to correspond with the demands imposed upon it by the metabolic exchange of the body cells. Thus increased activity of the cells in severe exercise is the cause of physiological dyspnœa. Clinical dyspnœa will result, therefore, whenever the metabolic rate of the tissues is abnormally high. This may occur when the body temperature is raised, as in fevers. Du Bois has found that the metabolic rate increases with rise in temperature, as would any chemical reaction, and this increase is reasonably constant, irrespective of the type of fever, at about 7.2 per cent. for 1° Fahrenheit alteration. Thus a patient with a temperature of 105° F. would have a metabolic level at rest roughly 47 per cent. over normal. This must be an important factor in imposing further strain on an already overtaxed respiratory system.

Exophthalmic goitre.—This condition may be considered here. In it several factors combine to produce dyspnœa on exertion :—

(1) The basal metabolic rate is raised by 50 per cent. to 100 per cent. in many cases.
(2) The mechanical efficiency of the body is reduced, even to a level as low as 15 per cent. (Boothby and Plummer[29]).
(3) The vital capacity is increased (Rabinowitch[12]).
(4) There may be an associated cardiac disorder, such as auricular fibrillation.

Although the first three factors will readily produce dyspnœa on exertion, it is clear that they are unlikely to do so at rest, and the occurrence in a case of exophthalmic goitre of dyspnœa apart from exercise is good evidence for the existence of a cardiac disorder (Means[2]).

(J) Dyspnœa due to functional causes.

I will use the term functional in a wide sense to include all cases where no macroscopical or microscopical lesion is demonstrable.

Cases do occur in which the individual—usually of a neurotic type—has adopted a shallow, inefficient type of respiratory movement, which results for the reasons given before in marked dyspnœa on exertion. These can usually be cured by re-educational exercises, and encouragement to slower, deeper breathing.

In the condition which was common during the war, and to which the name " Disordered Action of the Heart " was applied, the main symptoms were extreme cyanosis and dyspnœa on any exertion or emotional upset. The breathing was shallow and rapid, and the subject felt as if a tight band were encircling his chest and preventing his breathing. Haldane[10] explained this as an overaction of the Hering-Breuer reflex, due to the vagal impulses acting upon a depressed respiratory centre. This was exactly comparable to what has been described in connection with anoxæmia, and had the same effects. The nerve-centre depression was probably due to the nervous strain of war conditions, and also possibly to toxic influences.

Again, in convalescents recovering from various types of illness, dyspnœa may readily develop on any exertion. Here general nervous and bodily damage has probably occurred, and the dyspnœa results from the sum of the effects of slight inadequacy of all the bodily systems. The clinical condition is really very similar to that of the " neurasthenic," in whom, however, the inadequacy is due to a poor inheritance, and is that of a poor, rather than of a damaged machine.

To conclude : dyspnœa, a symptom referable by the patient to a very restricted portion of his bodily mechanism, may in actual fact result from disorder in almost any system of the body. One is therefore reminded again of the need for looking in every case beyond the local manifestation of the disease and treating the living unit as a whole. The physiological study has clearly shown how the different factors may interact to perpetuate a vicious circle, and demonstrates the folly of allowing such symptoms and signs as dyspnœa and cyanosis to go untreated, no matter how slight their degree.

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14. Davies, Haldane, Priestley.—*Journ. Physiol.*, 1919, liii, 60.
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27. Lewis, Barcroft.—*Quart. Journ. Med.*, 1915, viii, 97.
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Guy's Hospital Past and Present Nurses' League

THE 31st Annual Meeting and the 23rd Annual Dinner took place in the Nurses' Home on Friday, May 1st. The following Hon. Members of the Council honoured the League by their presence: Lady Bonsor (President), The Viscountess Goschen (Vice-President), Mr. and Mrs. Eason. It also gave great pleasure to the members to have with them two former Matrons, Dame Sarah Swift, founder of the League, and Miss Haughton.

Messages of regret and good wishes were received from Miss Victoria Jones, who is now 93 years of age and was Matron from 1882 to 1893, and from Miss Robins, Bristol, and Miss Wade, Liverpool.

The dinner tables were charmingly decorated and an excellent dinner was served. This year the overflow from the dining-room was seated in the "Winter Garden" approach to the new Revelstoke Memorial.

After dinner everyone adjourned to the Massage Department, where the Annual Meeting was held.

The Matron opened the meeting by welcoming all members.

The President, Lady Bonsor, introduced Lady Goschen and invited her to take the Chair.

The Minutes of the last Annual Meeting were taken as read, and signed.

The Hon. Secretary, the Matron, then gave the Report on the year's work as follows:—

Between 70 and 80 Associate Members have been transferred to the Past Members' Section of the League during the year. 120 sisters and nurses have spent "week-ends, days and nights off," at the Cottage, and over 1,200 short visits have been paid. 20 Past Members have stayed at the Cottage for short periods during the year.

Nearly 1,000 volumes have been taken out of the Nurses' Library during the year.

The Annual Garden Party and Re-union was held at the Nurses' Cottage on Wednesday, June 18th, 1930, but the afternoon was spoilt by a torrential downpour of rain, thunder, and lightning.

The Nurses' Tennis Club has not been so successful this year. In the Inter-Hospital *Nursing Times* Tennis Cup Competition we won our first and second rounds, but lost to St. Thomas's in the third round.

The Fagge Cup Competition was played on August 20th, there being only 20 or 30 entries, the combatants being Nurses Gillham and D. Payne, the holder. After a most strenuous fight, Nurse Payne again succeeded in winning the Cup.

Many friendly matches were played during the season—the Nursing and Medical Staff; the Administration Staff; the Massage Department; Miss James's Team, and teams from Carshalton and St. George's Hospital.

The Swimming Club was also not successful in winning any of the outside trophies this year.

On October 28th we had a most enjoyable Swimming Gala in the swimming bath in the Nurses' Home, when the Team Race for style and speed took place for Miss Hogg's Cup. The Massage Team were again successful in winning the Cup for the third time in succession. The Fripp Cup for style was awarded to Nurse Nockolds. The presence of our guests, the Treasurer, Mr. Whitbread, Colonel Fortescue and Mr. and Mrs. Denzil Fortescue and Miss Hogg, was very much appreciated by the Nursing Staff.

The Debating Society held a very successful debate on October 31st, 1930. It took the form

of short discussions on several subjects of general interest, and many good arguments were brought forward. The subjects were: "That Examinations should be abolished" (motion lost); "Long *versus* Short Skirts" (a large majority for short skirts); "An International Language" (motion carried); "That London is the best place in the World to Live in" (motion lost).

Further donations to the Equipment Fund of the Revelstoke Memorial (the Library, and Practical Class Room for Nurses) have been received during the year, and we now have in hand a sum of £136 15*s.* 2*d.*

Since our last meeting, I much regret to record the deaths of eight Past Members and two Present Members.

Miss Mary Nutt, O.B.E., R.R.C., died on May 19th, 1930, at Cape Town, South Africa, after a long illness. Miss Nutt trained at Guy's in 1891. She did wonderful pioneer nursing work in Nigeria in the early days with Major Luggard's Expedition, and later she transferred her activities to work in South Africa. During the European War Miss Nutt became Acting Matron-in-Chief in South Africa, and for her war services received the decoration of the O.B.E.

Mrs. Elsie Poolman, who died on June 17th, 1930. Mrs. Poolman entered Guy's Hospital as a lady pupil in 1885 and afterwards held the post of Sister of Martha Ward. Since her marriage, Mrs. Poolman devoted a great deal of time to the study of social welfare work, and was for many years a member of the Council of the Mothers' Union.

Miss Mina Jordan, who died at Clones, Ireland, on August 4th, 1930, from tuberculosis, contracted during the war. Miss Jordan trained at Guy's from 1913 to 1916, and then joined the Q.A.I.M.N.S.R. and saw service in Salonika and Constantinople.

Miss K. Brereton, O.B.E., R.R.C., J.P., died at Brinningham on September 16th, 1930, after a long illness. Miss Brereton entered Guy's as a lady pupil for one year's training in 1890. In 1893 she returned to Guy's as Sister-in-Charge of Bright Ward (for Paying Patients), which post she filled most successfully until October, 1899. On the outbreak of the South African War she was asked to join the Nursing Section of the R.A.M.C., and helped to organise the Irish Imperial Yeomanry Hospital at Dalfontein, and afterwards the Imperial Yeomanry Hospitals at Pretoria and Elandsfontein. She also served on the Royal Commission to inquire into the management of the Concentration Camps, and visited all the camps in the four Colonies.

Miss Blanche Sleap, who died suddenly at Worthing, on November 9th, 1930. Miss Sleap entered Guy's in 1891, and on completion of her training joined the private nursing staff of the Guy's Institution, and afterwards held various Sister's and Matron's appointments in other hospitals. Miss Sleap was one of the first members to join the Nurses' League, when it was founded by Dame Sarah Swift, and always made a point of attending the Annual Dinner and Meeting of the Nurses' League; and I am sure to-night her presence here will be missed by many old friends.

Miss Norah Boniface, who died on March 13th, 1931, at Sutton, Surrey, after a long illness. Miss Boniface entered Guy's in 1909, and was afterwards Sister-in-Charge of Luke Ward, the Eye Ward, and was Medical Night Sister.

Miss Lucy G. Moberley, who died in London after a short illness, on March 20th, 1931. Miss Moberley trained at Guy's as a lady pupil from 1890 to 1891. During the last year or so, Miss Moberley had been an indefatigable worker for the Ladies' Association, and at the time of her death had more than one project in hand to obtain funds for the hospital. Outside the nursing profession Miss Moberley was known as one of the most prolific novel writers of her day.

Miss Jessie Lewin, who died in London, on February 28th, 1931, after a very long illness. Miss Lewin trained at Guy's from 1898 to 1902, and afterwards held Matron's and Sister's appointments in Red Cross Hospitals and Civil Hospitals.

Miss Winifred F. Weeks, who died in Clinical Ward, after five weeks' illness, on August 11th, 1930. Miss Weeks entered Guy's in September, 1927, was Head Nurse in Naaman Ward, and would have completed her training at the end of October, 1930.

Miss Kathleen M. Pritchett, who died on August 16th, 1930, in Bright Private Room, after an operation. Miss Pritchett entered the Preliminary Training School in April, 1930, and had just commenced work in the wards when she was taken ill.

There is one other matter which I wish to report, the piece of land adjoining below the tennis courts at the Cottage, which used to be a tennis club, has recently come into the market. The Governors are considering the advisability of purchasing this piece of land to be held by them on behalf of the Nurses' League if it could be obtained at a reasonable figure, in which case the Nurses' League would be required to pay interest on the purchase money. The Council of the League at their meeting on April 27th considered the matter, and decided that if the Governors were able to make the purchase of this land it would be a great advantage to the Nurses' League, and that they would be willing to pay interest on the purchase

money. Although the ground is not immediately wanted for an extension to the Cottage grounds, its purchase by Guy's Hospital would secure it against unsightly houses being built on it.

In the absence of the Treasurer I have much pleasure in presenting the Financial Statement for the year :—

The Hon. Members' Subscriptions amount to £36 11*s.* 0*d.*; the Past Members' Subscriptions and Composition Fees to £124 10*s.* 0*d.*; and the Present Members' Subscriptions to £137 10*s.* 0*d.*

The Subscriptions and Grants have again covered the working expenses of the Cottage and of the different Clubs, and we have also paid a sum of £33 6*s.* 8*d.*, part cost of railway tickets to Honor Oak Park.

Our income for the year amounts to £635 0*s.* 9*d.* and our expenditure to £460 10*s.* 3*d.*, leaving an excess of income over expenditure for the year of £174 10*s.* 6*d.* to be transferred to capital.

The total amount of balance in hand amounts to £341 17*s.* 1*d.* The expense of printing, publishing and sending out of the new edition of the Nursing Guide and League Register will amount to nearly £300 this year, which will leave us with a very small balance to carry forward to next year.

The members were delighted to welcome Lady Goschen back to Guy's after her long absence in India, and listened with much pleasure to her account of the nursing conditions in that country.

Lady Goschen then presented the medals and prizes to the Nursing Staff and also the awards gained in the exhibition of Needlework, Sketching, Photography, and Arts and Crafts which is held annually in the Nurses' Home.

MEDALS AND PRIZES FOR THE YEAR 1930

The Butterworth Medal

The Butterworth Medal, instituted by Joshua W. Butterworth in 1889, is awarded to all nurses of Guy's Hospital who shall have completed five years' continuous satisfactory service at the said hospital :—

Sister Clara F. S. Bell.
Sister Norah M. Dickinson.
Sister Rosa Dreyer.
Sister Constance M. Faulks.
Sister Hilda M. New.
Sister Margaret Foster Smith.
Staff Nurse Audrey L. Bristow.
Staff Nurse Angela Falwasser.
Staff Nurse Una Gayner.
Staff Nurse Evelyn Monkman.

The Cazenove Medal

The Cazenove Gold Medal is awarded to the nurse who shall have obtained the highest aggregate percentage of marks in all the examinations held during 1929 and 1930 :—

Nurse Lucy de la Court.

The Keogh Prize

The Keogh Prize, consisting of Surgical Instruments, is awarded to the nurse obtaining the highest number of marks in the Surgical Examinations :—

Nurse Lucy de la Court.

The Morrison Prizes

The Morrison Prizes, Medical Books, are awarded to the nurses obtaining the highest number of marks in the Examinations in Medical and Nursing subjects :—

Nurse Annie M. Harris,
Nursing Examination, June, 1930.
Nurse Edith M. Fish,
Nursing Examination, December, 1930.
Nurse Gladys B. Smith,
Medical Examination, January, 1930.
Nurse Elsie A. Angier,
Medical Examination, December, 1930.

Bernard Loftus Brown Prizes

The Bernard Loftus Brown Prizes, presented by Mr. and Mrs. A. Loftus Brown, in memory of their son, are awarded to the nurses gaining the highest number of marks in each of the Final Practical Nursing Examinations held during the year :—

February, 1930—Nurse Marjorie E. Lloyd.
June, 1930—Nurse Winifred F. Weeks.
November, 1930—Nurse Lucy de la Court.

The Governors' Prize

The Governors' Prize, Medical Books, is awarded to the Probationer obtaining the highest number of marks in the Examination for Special Diseases :—

Nurse Lilian G. Bookham.

NEEDLEWORK EXHIBITION

PRIZES

CLASS A, 1. *Plain Needlework*

1st Prize—Miss Collier ..... A Nightgown.
2nd Prize—Miss Bullock ..... Pair of Pyjamas.
3rd Prize—Miss Richardson ..... 3 Nightgowns.

CLASS B, 1. *White Embroidery*

Prize—Miss Phillips .... 2 Teacloths.

CLASS B, 2. *Coloured Embroidery*

1st Prize—Miss Boys .... 1 Nightdress Case.
2nd Prize—Miss Moss ..... 1 Tea Cosy.

CLASS C, 2. *Crochet*

Prize—Mrs. Stephen Broughton 1 Teacloth.

CLASS C, 3. *Knitting*

Prize—Miss Johnston	1 Jumper.
1st Prize—Miss Elliott	1 Baby's Frock, Coat, Knickers and Socks.
2nd Prize—Miss Andrews	1 Baby's Woolly Coat.

CLASS D. *Dressmaking, etc.*

Highly Commended—Miss Elliott	1 Dress.
Commended—Miss Lang	1 Dress and Underslip.

CLASS E. *Arts and Crafts*

Prize—Miss Edmonds	Bag.
Prize—Mrs. Freeman	Gloves.
Prize—Mrs. Trick	4 Cushion Covers
Prize—Miss Angove	1 Fire Screen.

CLASS C. *Paintings and Sketches*

23. "The Skater"—Miss M. L. Livingstone (1st Prize).
15. "Rob and Joe"—Miss E. M. Everitt (2nd Prize).
7. "A Scene in South London"—Miss J. S. M. Hedley (Highly Commended).

CLASS B. *Photographs which have been taken by the Exhibitor, but not printed or developed by her.*

19. "Roseg Glacier, Engadine"—Miss L. G. Oldendorff (1st Prize).
15. "The Pool"—Miss M. W. Sparks (2nd Prize).
2. "The Harbour, Portleven"—Miss G. H. Fletcher (3rd Prize).
25. "Isles of Scilly"—Miss F. Taylor (4th Prize).

Highly Commended

6. "King Arthur's Rocks, Tintagel"—Miss M. C. Stewart.
7. "Cornwall" Mrs. Rowlands.
11. "Cloud Effect at Exmouth, Devon"—Miss E. S. Spring.
12. "The Seven Sisters, Sussex"—Miss E. S. Spring.
18. "La Mer de Glacé, Chamonix, France"—Miss A. F. Boys.
32. "Biddistone, Wilts" Miss L. G. Oldendorff.
38. "Where's Mine?" Miss Merson.
53. "Spray at Cap Martin, S. France"—Miss W. D. Rogers.
64. "Sarcophagus, Constantinople"—Miss A. Park.

Votes of thanks were then accorded to the retiring Hon. Members of the Council, Mrs. W. Burns, Mrs. Mollison, Mrs. Turner, and Mr. Eason, after thanking Lady Goschen for coming to take the Chair, remarked on the longevity of Guy's Matrons. He said that during the last 206 years there had been 14 Matrons, seven of whom were still alive, and that any of the present company who aspired to the post might be quite certain that nothing would kill them.

MEMBERS OF COUNCIL FOR 1931

Hon. Members—
Lady Reginald Bonsor.
Mrs. Hurst.
Mrs. Ormond.

Choral and Dramatic Society—
Sister Surgery (Miss Matthews).
Sister Dorcas (Miss Lloyd), Deputy.
Nurse G. C. Fuller.

Swimming—
Sister Ethel (Miss Waller).
Nurse Stainforth.

Library—
Sister May (Miss Cawthorne).
Nurse Nockolds.

Garden—
Sister Evelyn (Miss Opie).
Nurse N. Jones.

Needlework—
Sister Rosalie (Miss Dreyer).
Staff Nurse Bullock.

Tennis—
Sister Bright Annexe (Miss Johnson).
Nurse Payne.

Debating—
Sister Hilda (Miss Gration).
Nurse Marriott.

Photography—
Sister Florence (Miss Taylor).
Nurse Roseveare.

Guy's Hospital Gazette

(ESTABLISHED 1872)

A Journal of Hospital News, Medicine, Surgery and Dentistry

Published on alternate Saturdays. Price 9d.

Editorial and Publishing Office—THE COUNTING HOUSE, GUY'S HOSPITAL, LONDON, S.E.1.

Annual Subscription, including *Directory of Guy's Men (Medical and Dental)*, **12s. 6d.** Post Free, payable in advance.

The Editor will, at all times, be glad to consider articles or sketches, provided that they are accompanied by the writer's name and address, not necessarily for publication. The payment that the GAZETTE can offer is merely nominal. Authors who desire reprints of their papers should make their own arrangements with the printers when they return their proofs. All contributions to be addressed to *The Editor*, who does not accept responsibility for the views expressed by contributors.

A Free Lending Library at Guy's

THANKS to a gift of 250 books from the British Red Cross Society Library, a nucleus has now been formed for a Free Lending Library for the patients.

The late Miss L. G. Moberly was greatly interested in the scheme; she expressed the wish that a collection of about 100 of her own books should be added to the library.

This generous gift has been supplemented by a collection of good books of fiction which were kept out of this year's Jumble Sale. It will now be possible to make a start in some of the wards, but a great many more books are wanted if the needs of the whole hospital are to be met.

The Hon. Librarian, Mrs. Arthur Richmond, appeals to the readers of the *Gazette* and their friends to send her their surplus stock of books of good fiction which they will not read and which are only encumbering their bookshelves. Not only books of fiction will be gratefully received, but also interesting books of all kinds—not heavy bulky ones—of travel and adventure, poetry, biographies and letters. The books are housed in the architect's room at the hospital. The distribution will take place every Tuesday and Thursday morning to begin with.

Parcels of books should be addressed to :—The Hon. Librarian, Guy's Free Lending Library, Guy's Hospital, S.E.1.

Landon Out-Patient Tea Fund

STATEMENT OF RECEIPTS AND PAYMENTS for the Year ended 1st March, 1931

RECEIPTS	£	s.	d.
To Donations and Collections (as per list)	95	3	2
„ Interest on Invested Funds and Deposit	8	10	8
	£103	13	10

PAYMENTS	£	s.	d.
By Cost of Tea, Groceries, Provisions, Fruit, etc.	28	14	0
„ Band	25	2	6
„ Films (Hire of)	6	18	6
„ Gifts of Toys, Clothing, etc.	21	18	5
„ Police Fees, Gratuities, etc.	8	12	0
„ Printing, Postages, etc.	3	8	7
„ Decorations, etc.	4	13	1
	99	7	1
„ Balance, being Excess of Receipts over Payments	4	6	9
	£103	13	10

BALANCE SHEET, March 1st, 1931

LIABILITIES	£	s.	d.
Accumulated Funds—			
Amount brought forward from last Account	405	6	7
Add—			
Excess of Receipts over Payments	4	6	9
	£409	13	4

ASSETS	£	s.	d.	£	s.	d.
Investments—						
5 per cent. War Loan at Cost				150	0	0
Cash at Bankers—						
Deposit Account	225	0	0			
Current Account	34	13	4			
				259	13	4
				£409	13	4

(Signed) BERTHA MARTIN,
Treasurer.

Salomons Welfare Centre,
Guy's Hospital, S.E.1.

Audited and found correct.
(Signed) W. J. CURRY,
Corporate Accountant, Auditor.

April 30th, 1931.

Correspondence

Derby Day Students' Collection

To the Editor of the GAZETTE

SIR,—The Directors of the Southern Railway have kindly consented to the Annual Derby Day Collection in aid of Guy's being made at the London Bridge Stations on Wednesday next, June 3rd.

Funds are urgently needed, and as this will probably be the only opportunity for a public collection this year, I shall be grateful if as many students as possible will volunteer their services for the occasion, a successful result being mainly dependent upon the number of collectors.

Will students who can kindly undertake this duty for two or three of the morning hours please place their names on the list posted in the Colonnade, or hand them in at the Appeal Office, where white coats and armlets will be provided.

Yours, etc.,
ERNEST R. P. HOMFRAY,
Secretary, Appeal Committee.

Guy's Hospital,
S.E.1.

Sport

Cricket

Guy's v. The Private Banks

THIS match was played at Catford on Saturday, May 2nd, and resulted in a win for the Banks by 8 wickets.

Owing to the ground and the wet weather, Guy's had been unable to get much practice, and were dismissed for 41, 26 of which were scored by Peatfield, who alone showed any semblance of form.

The Private Banks knocked off this total for the loss of only 2 wickets, but the match was played out, and Guy's did well to dismiss a strong side for 124. Whitteridge was the most successful bowler, taking 6 wickets for 43 runs; a very good performance.

Scores—Guy's, 41; Private Banks, 124.

Guy's

E. V. B. Widdowson, b. Bryan	0
T. D. Ridsdale, b. Fevey	2
S. R. Peatfield, st. Murch, b. Black	26
J. A. G. Starnes, c. Coleman, b. Bryan	4
H. Cameron, c. Murch, b. Fevey	0
M. J. Lindsay, c. Robertson, b. Bryan	2
L. E. Marshall, c. McMillan, b. Bryan	0
R. M. Outfin, b. Fevey	3
S. M. Whitteridge, c. Pearce, b. Black	1
D. J. Rees, not out	0
L. S. Woodivis, b. Black	2
Extras	1
Total	41

Private Banks—124 (M. Dawkins, 45; G. Foster, 46).

Bowling—Whitteridge 6 for 43, Woodivis 1 for 33, Marshall 1 for 15, Cameron 1 for 0.

Guy's v. Wimbledon

THIS match was played at Wimbledon on May 9th and resulted in a draw. The Hospital batted first and made 176. Doherty was the most successful batsman with a fine 74. Both Peatfield and Davis were batting well when they were unluckily run out. Outfin continued the game with a merry 22, which included a 6.

Left to make the runs in two hours, there was a possibility of an exciting finish; however, Wimbledon were content to play for a draw, the match ending very tamely.

Outfin behind the wicket was in great form, disposing of four batsmen—three caught and one stumped—and conceding no byes.

Scores—Guy's, 176; Wimbledon, 104 for 6 wickets.

Guy's

T. D. Ridsdale, b. Meikle	16
E. V. B. Widdowson, b. Harcombe	7
S. R. Peatfield, run out	23
J. A. G. Starnes, b. Meagher	0
G. V. Doherty, c. Steward, b. Meagher	74
R. V. Payne, b. Churchill	3
E. J. Davis, run out	20
M. L. Walt, b. Meikle	1
H. Cameron, not out	5
S. M. Whitteridge, c. Steward, b. Meagher	0
R. M. Outfin, c. Meikle, b. Meagher	22
Extras	5
Total	176

Wimbledon.—104 for 6 wickets (C. E. Harcombe 34 not out, H. E. Bevan 24 not out).

Bowling.—Whitteridge 1 for 22, Walt 1 for 19, Payne 2 for 13, Doherty 2 for 13.

Hospital Information, etc.

Pass List

CAMBRIDGE UNIVERSITY.

M.B.

I. B. Morris

SECOND EXAMINATION FOR MEDICAL AND SURGICAL DEGREES.

PART III.

Pharmacology and General Pathology.

J. B. C. Murdoch — G. S. Steele-Perkins

CONJOINT BOARD

FINAL EXAMINATION.

April, 1931.

SECTION I.

Pathology.

F. N. Corfe
E. H. de B. Crowther Smith
R. T. Elven
L. Kessel
J. S. Lane
A. A. Lewis
W. H. Lewis
T. A. MacDougall
J. R. S. Sharp
W. P. Stamm
G. H. Taylor
†J. C. Wharton

SECTION II.

i. *Medicine.*

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†J. S. Batchelor
†H. Bloom
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†D. Erskine
M. J. Garber
H. N. Garrus
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†G. Holroyd
†I. O. Jones
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M. Kosloff
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†G. F. Lashmore
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†A. Segil
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†A. L. Thomas
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ii. *Surgery.*

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A. Miller
I. Moshinsky
C. H. Rogerson
C. Rutter
E. S. St. John
†K. S. Southam
D. Stone
†A. L. Thomas

iii. *Midwifery.*

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J. M. L. Burtenshaw
A. M. Cantor
H. Edwards
G. G. Exner
J. Howell
S. B. Lange
R. A. Q. Lay
A. A. Lewis
P. H. Lomax
M. T. Maung
H. Rosenberg
E. S. St. John
C. E. R. Wood

† Is now qualified.

Appointments

R. E. Smith, M.B., B.Ch., Medical Officer to Rugby School *and* Assistant Physician and Radiologist, Hospital of St. Cross, Rugby.

G. E. Kidman, M.B., B.S. (Lond.), Hon. Assistant Physician, Derbyshire Royal Infirmary.

Change of Address

R. N. Craig, M.D., 35, Southernhay West, Exeter. *Exeter* 2159.

R. E. Smith, M.B., B.Ch., 3, Horton Crescent, Rugby. *Rugby* 132.

F. W. Gilbert, M.B., B.S., Anglo-Belgian Boundary Commission, c/o D.M.S.S., Livingstone, N. Rhodesia.

E. Canton Seward, M.B., B.S., 37, Hertford Street, Park Lane, W.1. *Mayfair* 3300 (unchanged).

Papers by Guy's Men

W. M. Mollison. Vertigo after radical mastoid operation; cured by injection of alcohol into labyrinth. *Proc. R.S.M.*, 1931, xxiv, 970.

O. G. Morgan and C. P. Symonds. Internal ophthalmoplegia with absent tendon jerks. *Proc. R. S. M.*, 1931, xxiv, 867.

A. A. Osman and H. G. Close. Observations on plasma bicarbonate and value of alkalies in treatment of some renal complications of pregnancy. *Proc. R.S.M.*, 1931, xxiv, 880.

R. P. Rowlands. Epithelioma of tongue; operation in 1916; no recurrence. *Proc. R.S.M.*, 1931, xxiv, 921.

Birth

HUDSON.—On May 23rd, 1931, at 11, Dashwood Road, Banbury, to Dorothy, wife of Wilfred F. Hudson, M.B., B.S., a daughter, who was named Janet.

Marriage

MARSHALL—BROWNE.—On April 23rd, 1931, at St. Saviour's Church, Warwick Avenue, W., Charles Wallace Marshall, M.D., B.S. (Lond.), to Helen Marion Browne, M.B., B.S. (Lond.).

Death

FELTON.—On Sunday, 10th May, 1931, Annie Reynolds Felton (Sister Rennie Field), at Victoria, British Columbia.

EDS. { P. M. F. B. / P. V. R.

THE WILLS LIBRARY
GUY'S HOSPITAL

GUY'S HOSPITAL GAZETTE

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PASSIM

THE search for editorial inspiration is as barren in its results as the young specialist's search for patients who will pay him a fee, but, prompted by the same ardour, the searcher is spurred on by what a certain modern lady writer has so expressively described as a "hapless, hopeless hope." In the course of our pursuit we were overjoyed to find the hospital journal of one of our contemporaries. With a feeling of despondent satisfaction we read an editorial deploring the recent rarity of the "Middle Article." The middle article in all journals, especially hospital journals, plays the part of leaven. It is the article which is read by at least half the readers.

There are those who read nothing but "Passim," just as they read nothing but the preface of their text-books, look at nothing but the first page full-size portrait in the weekly pictorial periodical, laugh at nothing but "Charivari" in *Punch*, and go through the world with a wealth of superficial knowledge and a false reputation of being well-informed. There is the type who reads the clinical lecture, the man of good intentions, the earnest student of second-hand information, who throughout life will have quite meant to have gained his information first-hand. There is the type who reads the correspondence because he feels that one day he may achieve fame by himself entering the lists on some minor controversial point, even though his letter may be suffixed by an editorial note to the effect that "this correspondence is now closed." There are those who, in the hope of absorbing the knowledge contained in 1,000 pages, read the book reviews which average 500 words. And then there are those who read the middle article. They constitute the majority, the type to whom the principle of getting something for nothing is an inborn factor, for when they subscribe to their hospital journal they expect a "Passim," for it is a token of tradition, a link with the past, for whoever the present editor may be, he writes, symbolically at any rate, with the pen of his fore-runners; they expect a clinical lecture, for it raises the tone of the paper, and anyhow, it might come in useful when they are revising before an examination. But the middle article is something different.

It might have appeared in any other journal, from the *Strand Magazine* to the *Daily Express*. It is amusing, it is light, it is easy to read in the College at lunch or in the train going home, and somehow it is quite unexpected, like a free portrait supplement of Professor Picard in the latest periodical on aeronautics.

But what of the author of the middle article; where has he gone? Have we so long mourned the Muse of light literature that we have forgotten to appoint her successor? Not so many years ago those who feared to put their pens to paper for once in a while to give their imaginations a free rein were in the minority. In those days the editorial waste-paper basket was so sufficiently full as to engender almost a feeling of conceit and superiority in the breast of its proprietor, but now it is in pawn and there seems no likelihood, or, indeed, necessity, for its redemption.

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WE should like to take this opportunity of offering to Mr. W. D. Doherty our most sincere congratulations on being appointed Assistant Surgeon to the Hospital. His unfailing energy and patience have assisted many of his pupils in what might otherwise have been their future flounderings in the surgical wards, during his many years as Surgical Registrar, and his enthusiasm and advice have in recent years been of inestimable benefit to many a captain of the Rugger XV.

THE recent examination results for the M.B., B.S. (Lond.) degree reflect great credit on the Hospital, and one of us is pleased to be able to congratulate Mr. P. V. Reading on obtaining the University Gold Medal, gaining distinction in Surgery and Midwifery. We should also like to congratulate Mr. T. F. Todd on gaining distinction in Midwifery.

WE should like to comment on the enterprise and enthusiasm of Dr. and Mrs. J. H. Ryffel in organising so successfully an American Tennis Tournament in aid of the Smokers' Stall at the coming Hospital Fete. A sum of approximately £60 was raised by the afternoon's entertainment, and we all much appreciated the generosity of the hostesses of Chipstead who sacrificed their tennis courts to the ravages of the 150 ardent, if somewhat amateur—we speak for ourselves—entrants and provided so lavish teas for about 250 persons.

THE Annual Derby Day Collection this year resulted in the sum of £234 being added to the Hospital coffers. This is an advance of about £30 on last year's collection, and represents the most praiseworthy pertinacity of all those who assisted in raising this sum. We should like to congratulate most heartily all those who arose from their beds at dawn to apply themselves to that most distasteful task of begging, and to accomplish the much more difficult feat of begging successfully.

ON another page a notice will be found relating to the Garden Fete which is being organised by the Guy's Hospital Ladies' Association. This will take place in the Hospital grounds on Thursday, June 25th, and the proceeds are entirely in aid of the Hospital. It is hoped that as many Guy's men and women will attend and, if possible, assist the ladies to make this function a success. Mrs. R. Davies-Colley, 10, Devonshire Place, W.1, will welcome any offers to help at the stalls or side shows, and it is hoped that as many as possible will take this opportunity of showing their appreciation for the work of the Ladies' Association in this practical manner

On Enuresis

By Leopold Mandel, Esq., M.D., M.R.C.P. (Physician with Charge of Children's Department, London Jewish Hospital)

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THE title of this paper may seem trite, but let me assure you that enuresis is one of the most irritating and difficult problems of medicine. Little progress has been made in unravelling its ætiology, and, consequently, little progress in its treatment. I doubt whether there is one of us here to-day who has not had cases which he has given up in despair. It has not only a clinical interest, but also a sociological one. Apart from the mental suffering which it causes the patient and the unhappiness it brings to the parents, it is a serious problem to the educationist. Inability to cure the condition, or to give it a sympathetic understanding, often means that the poor little sufferer is forced to carry a heavy burden. He may seem to do it bravely and stoically, but the stigma is gradually making an indelible blotch on the child's personality, undermining his self-respect, implanting a repression and generally adversely affecting his moral and mental development. It is no excuse that "He will grow out of it." That is but an admission of failure, and let me say now that it is not essentially the job of the specialist, be he pædiatrist, uro-genital surgeon, psychologist or psycho-analyst, but of the family physician. It is he alone, by his intimate knowledge of his little patient's make-up, physical disabilities, family history and domestic environment who is in the position to diagnose the cause of the enuresis and to treat it.

The text-books give but little space to the condition; true, they give lists of the more potent so-called causes, physical ones, such as worms, tonsils and adenoids, phimosis, acid urine, etc., but these are more contributory than causal factors; indeed, in a recent series of 60 cases examined, only 8.3 per cent. had worms and there was but one case of phimosis. Text-books offer but little help in treating the cases in which the relieving of physical (or reflex) disabilities fails, and in those cases—and they are in the majority—in which there are no traceable physical abnormalities they offer still less help. Most of the old literature on enuresis advanced hypotheses as to its cause, based on organic abnormalities, but one by one these hypotheses have been exploded. The incidence of enuresis in childhood seems to have increased during the last ten years. In Germany and Central Europe over 130 articles appeared during the years 1920-29 alone, and the impression is that it is an aftermath of war conditions. Interest in its ætiology and treatment was consequently stimulated.

Until recently the study of enuresis was chaotic; pædiatrists, psychiatrists and urologists trod on each other's heels. Each regarded it as his own

particular sphere and endeavoured to explain it from his own specialty. The urologist blamed the innervation or mechanism of the bladder, and for a while enthusiastically pointed to the connection of spina bifida occulta, or some fault in the development of the lowest part of the vertebral column. He was aided and abetted by the radiologist, who, by means of extra-special technique, demonstrated lesions in the bony spinal canal in practically every case of enuresis. In spite of Holmdahl and others showing that these lesions are equally common in children without enuresis, ardent surgeons in France and America still practise laminectomy, and Legueu, in reviewing this form of treatment, says, "The method has been employed for some time at the Necker Clinic, and without results from any point of view. Laminectomy for incontinence of urine in 6- to 8-year old children should not be employed unless some marked spinal deformity is shown by the X-rays." I think one might add, in view of Mertz and Lister Smith's recent paper on "Posterior Spinal Fusion Defects and Nerve Dysfunction of the Urinary Tract," that laminectomy should be reserved for older children, showing anomalous developmental lesions of the lower vertebral column when accompanied by neurotrophic symptoms, such as talipes, etc.

The psychiatrist regarded the trouble as essentially psychic, and if he was of the Freudian School he immediately solved the problem by labelling the child an "urethral erotic." As Cameron pointed out, anyone at all conversant with the mind of a child suffering from enuresis would not for a moment admit that it was in any way comparable to masturbation. The latter is essentially a voluntary act, whilst incontinence of the bladder in enuresis is without the instigation of the child. In one there is an urge to produce a gratifying sensation, in the other there is an urge and an endeavour to avoid discomfort. In rare cases masturbation and enuresis may co-exist, having some common exciting factor such as vaginitis, phimosis, pruritus, etc., but to regard the problem as solved on psycho-analytical grounds does not appeal to me personally.

The pædiatrist regarded the affliction as a disease *sui generis*—a thorny problem which is a veritable bogey to be side-stepped if possible. The 18th-century physician expressed his dislike for the condition, and, maybe, his pique at its baffling propensities by ordering the birch rod as the best cure.

Let me briefly review the various theories and see if by correlation there can be arrived at some generalised system of investigation which, if not entirely solving the problem, might at least help in regularising treatment.

Some knowledge of the neuro-muscular mechanism of the bladder is essential if we wish to have an understanding of enuresis.

As for the uterus and anus, there are two mechanisms at play—the involuntary or visceral and the voluntary or somatic. Filling the bladder demands tight sphincters and relaxed vesical wall, whilst emptying the bladder reverses the process —the wall contracting and the sphincters relaxing. The filling mechanism is purely involuntary and automatic; the emptying process is mostly voluntary, but not entirely. The co-relation between the processes is very close. The filling mechanism finds its centre in the twelfth dorsal and first lumbar segments and is operated from the cord. The voluntary or emptying process has its centre in lower segments, but is linked up directly with the cerebrum. In micturition sensations of distension reach the cord; the trigone and vesical wall contract, the internal sphincter (involuntary) relaxes. Then follows the voluntary phase; the voluntary sphincter relaxes, urine is expelled. When the bladder is empty the involuntary sphincter closes, then the external sphincter and, finally, the bulb and urethra contract and expel the last few drops from the urethra itself.

It is easy, then, to follow how direct cord impressions influence the control of the bladder, likewise how direct over-stimulation of the sensory apparatus, as for example exists in cystitis or anal or urethral irritation, can be important factors. Also we can conceive how bladder derangement can result from a disturbance distant from the centre in the cord. Afferent stimuli reach first the cerebellum, then the thalamus and corpus striatum for co-relation, and then pass on to the cerebrum for the initiation of the voluntary impulse. In early childhood up to the age of, say, three years, depending on the training the infant has had, the cerebral inhibition, or control habit, is not yet established, probably due to the immaturity of the conducting tracts and cerebrum. In idiots and imbeciles this immaturity endures and enuresis is a natural sequence. Occasionally in chorea, encephalitis, etc., we find a temporary disturbance of normal bladder control, probably traceable to an interference in cerebral co-relationship and a resulting deficient inhibitory control. Similarly in nervous instability, be it familial, congenital, hereditary or acquired, we must not be surprised to find the inhibitory control easily unbalanced. It is not sufficient to regard these cases as due to a delayed control, for it is not uncommon to hear that control was established at the normal time, subsequently to be lost again, following some

illness or a fright, etc. No; in the majority of cases enuresis is a nervous disorder, and must be regarded and treated as such.

First let us deal with factors which render the spinal centres more irritable—may I term them "palpable irritative factors":—

Over-tension, as seen in diabetes insipidus and mellitus, etc.

Direct reflex stimulation within the bladder, e.g., b. coli bacilluria, hyper-acidity of urine, cystitis, tuberculosis of bladder, stone.

Outside the bladder.—Phimosis, congenital malformations, adherent clitoris, vaginitis, balanitis, pruritus, ammoniacal meatal sore, meatal stricture, thread-worms, etc.

Enlarged tonsils and adenoids are stated to be a reflex cause of enuresis, but this condition is an ætiological factor of no importance. Bleyer, in his analyses of 116 cases, states: "Forty-nine were operated on for tonsils and adenoids; one only was benefited as far as the enuresis was concerned." I, personally, have only known one case benefited and that, I think, was purely by suggestion. This boy, aged nine years, highly intelligent and very anxious to go to a preparatory school as a boarder, was assured by all of us that the operation would cure the enuresis, and it did so; the enuresis ceased from the day of the operation. I have tried the same forcible methods of suggestion in other cases with an easy conscience, as the operation was necessary, without any success at all.

Any one of the foregoing conditions—that is, focal points of irritation—should be carefully sought for and eliminated (I will not detail the treatments necessary; they are all familiar), but I am afraid that this alone—curing local disease or conditions—will but seldom effect a cure in a true case of enuresis.

Clinical analyses of these more palpable elements in enuresis have shown they have little or no relationship to enuresis proper and may account for some 10 to 15 per cent. of the cases, that is to say, there may be 10 to 15 per cent. of cases of enuresis cured by removing some of the aforementioned conditions.

It is into the second class that most of the cases fall—the neuropathic child, the child showing constitutional instability. In this type there is a hyper-sensitiveness of its whole system. Many enuretics show some other evidence, such as nail-biting, or stammering, or vaso-motor indications, such as a sinus arrythmia, blushing easily, etc. I call this class the hyper-sensitive or nervy child type. I wonder whether we might not term these children "vagotonics" in the sense that this type of child has a sympathetic or para-sympathetic system more vulnerable and, consequently, more easily unbalanced than the normal child. It must be distinguished from the next class, which I will describe later, in that in this hyper-sensitive class—the most numerous in my opinion—the enuresis is but a symptom, vaso-neurotic if you like, whilst in the following class the subject has but little control owing to an abnormal mental state, the enuresis being a stigma comparable to other signs of poor intellect or mental development.

To revert to the nervy type, it is best exemplified by one or two cases:—

Boy, aged eight years; family history negative. Youngest child of five. Control established at 2½ years and remained normal until he went to school at 5½ years. Shortly after showed restlessness in sleep and twitchings. Adenoids and tonsils removed; no improvement. At six, occasional nocturnal enuresis. Mild chorea diagnosed, with a localised systolic murmur. School stopped for two months. Movements improved; nocturnal enuresis still occasionally. At age of 7½ a typical nervy child, with occasional attacks of vomiting and ketonuria, etc. He was treated by glucose, dieting and alkalis, and was taken away from school for six months and sent to the country with his nurse. The enuresis ceased and did not re-occur.

My reading of this case is that in this vaso-neurotic type of child the enuresis was a symptom of its nervous instability; toning down the hyper-sensitivity of the child cured the unstable micturition reflex just as its twitchings and other manifestations were cured.

Recognition of this type is important, for it gives us an indication of remedial measures. First of all *diet*. Undue excitation of the bladder, in fact all increased reflex stimuli, must be avoided. Intake of fluids from mid-day onwards must be reduced; nothing to drink after 5 p.m. To assuage the thirst an orange may be given. Fatty foods must be avoided. Diuretic drinks, such as tea and meat extracts, are contra-indicated. Easily digested food, non-constipating and not tending to large stools, should be advised.

Special care must be exercised in the so-called waking therapy—the child being awakened at set hours to pass water—in these cases. Being nervy they are light sleepers. Drastic measures, such as a cold sponge, should never be used; the effect on their hyper-sensitive natures of these rude awakenings may be worse than the enuresis itself, and, in fact, may act as a spur on their already hyper-sensitive bladder reflexes. If, after repeated trials, the gentle rousing to empty the bladder is not successful in checking the enuresis, I think it is better to use a sedative, such as luminal gr. ½, with an idea of obtaining a better and more

complete relaxation of the nervous system. Monobromate of camphor (dr. i of the elixir) has been advocated in these cases by Pototsky, who sometimes prescribes with it calcium lactate. This should be taken at night. (It is interesting to note that camphor has been advocated and used by the old therapeutists to control dreams and nocturnal emissions.) Other methods of relieving the hypersensitivity of the bladder, such as raising the foot of the bed or making the child sleep on its side, may be tried.

In passing, one should mention that some authors have claimed good results from electrical treatment in toning up the trigone, whilst Bleyer in his clinical study of enuresis advocates, especially in diurnal enuresis, gentle massage *per rectum*. R. Thompson, in this country, has advocated re-education of the bladder by graduated distension by injection of water, and teaching the little patient to exercise control until he can hold for longer and longer periods a maximum amount.

Mention must also be made of epidural and retro-rectal injections of saline (White and Martin). This is thought to act by stimulating the inhibitory centre in the cord, and, though good results have been claimed, the method is not without danger; one fatal case of meningitis has been reported.

The drugs of choice are undoubtedly atropine and belladonna. They act through the vegetative nervous system on the unstriped muscle of the bladder, allaying undue excitability. If properly exhibited they will account for some 80 per cent. of cases. If atropine sulphate be used 1/1000 gr. can be given t.d.s. (a solution 1 gr. to 2 oz. of water contains in one drop 1/1000 gr.). The dose can be increased by one drop a day until enuresis is stopped, or toxic symptoms develop.

Tincture of belladonna, however, is far simpler and just as efficacious. Start by giving 5—7 min., depending on the age, three times a day, increasing the daily dosage 1—3 min. until the usual signs of belladonna toxicity—dry throat, irritability, dilated pupils, flushings or rash begin to manifest themselves.

I have in those children who seem toneless and flabby added ext. ergot liq. 5—10 min. t.d.s., and have seen several cases greatly benefited by this addition. It may act by toning up the involuntary muscle of the internal sphincter. In the nervy type I usually add 5 gr. of ammon. brom. t.d.s. to the belladonna, increasing it gradually each week up to 8 gr. t.d.s.

So much for the physical aspect of the treatment, but we must not neglect the environmental factors, which may act detrimentally in a hyper-sensitive type. Domestic details, such as sleeping accommodation, over-crowding, eye-strain at school, being disturbed by other children, overwork and insufficient sleep are all details which should be looked into and, if necessary, rectified.

No one is better able to judge of these conditions than the family doctor, and he also has the additional advantage of being in a position to discover whether there be any incompatibility between the mother and child. It does not need a psychiatrist to do this, and it is often a factor of no small importance, as the following case will show :—

A boy, aged 12 years, had nocturnal enuresis which ceased when his asthma—an allergic type due to egg—was cured. His parents had been unable to send him to a preparatory school, where his brother was, on account of the enuresis. For some four years the boy's affliction had been the black spot in the household's otherwise happy outlook. It was a pall which overhung the parents and reflected itself in the boy's demeanour. Subconsciously the little patient felt that his affliction was the pinnacle around which the household revolved. His cure came about, as related above, when the asthma ceased, and straight from the seaside he was sent to a boarding-school. He remained free from trouble. The first night home on his holidays his fond mother, when tucking him up in bed, said : " I do hope now you are home you will not wet the bed." The suggestion was fatal—enuresis ensued that night and continued for one week, until I sent the boy away from his mother to stay with his cousins in the country. The trouble ceased immediately. The chain of events in this case, I think, was that the suggestion brought back the old idea of the affliction being the central interest in the domestic circle, and acted as a de-controlling influence on the boy's inhibition—involuntary, of course. I should have warned the mother, being aware, as I was, of the make-up of the mother and son, or, in other words, of the incompatibility as far as the disease was concerned.

I have purposely related this case here as it leads up to the next class or type of enuretic. It is hard to define it by nomenclature ; some authors call it the " psychopathic " group, but I think that is too wide, and maybe, for those of us who are not psychologists, a little too academic. Rather would I suggest that it is a group in which the enuresis, as I have hinted previously, is not so much a symptom of constitutional hyper-sensibility, but rather a phase in a poor development of the power of volition, or, say, a temperamental stigma. In this class one can put the timid child, the depraved child, the phlegmatic, lazy and dirty child—that is, the psychologically abnormal child.

Recently I saw among my out-patients a child whose enuresis dated back to a sudden fright, it

being awakened by the noise of a hammer, made by an amateur carpenter in the next room. This fact was elicited after the third visit. The child was unduly timid. She was re-assured, the amateur carpenter showed her how the noise was made and became friendly with the child. The mother was advised not to scold, but to praise the child when the bed was dry. Within a month the enuresis stopped.

Incidentally I might mention that scolding and punishment should but rarely be resorted to, and only in those cases of older children showing indifference and lack of shame.

One cannot go deeply into this group as it lies really within the sphere of a psychiatrist. But if we recognise it we can direct the patient to the psychiatrist and, in simple cases, can treat the conditions ourselves. Suggestion is often of use, and a good method to employ on the Coué lines is the child being encouraged to use auto-suggestion before retiring by repeating, " I will not wet the bed " ; then rewarding it next day if by chance there is any improvement.

Naturally belladonna is of use and we can also use disciplinary measures, such as waking up the child at regular intervals, mild reprimand, re-adjustment of education, especially in those cases showing lack of moral sense or shame, with a freedom which we should not utilise in the hyper-sensitive or nervy type of child (Class II).

At the extreme end of this group is the true psychopathic—the imbecile or mentally deficient (without evident endocrine element). These children are a difficult problem ; little can be done, though they do show improvement sometimes by painstaking training on the part of the mother.

The fourth type is the so-called hypo-thyroid type. I prefer to call this group the endocrine dyscrazic type. Many cases are benefited by giving small doses of thyroid, say 1/10—$\frac{1}{4}$ gr. (thyroideum siccum) t.d.s. In the Mongoloid type I get an undoubted improvement, and in these cases I usually add pituitrin $\frac{1}{2}$ gr. daily.

In connection with this group it is interesting to note that in 1925 Moss records that in a series of 30 cases at the Beth Israel Hospital, New York, striking results were obtained by exhibiting pituitrin whole gland 1 gr. t.d.s. After every other form of medication and therapy had been tried and failed, 50 per cent. showed some improvement and 25 per cent. very definite improvement in 2—12 weeks. He states : " Whether the pituitary increases the inhibitory action of the higher centre on the lower centre, or diminishes the irritability of the lower centre so that it does not respond so readily to the various stimuli, or whether it increases the tone of the bladder muscle, has not been definitely determined as yet."

In this connection it is interesting to note that C. F. McClintic, writing on neuro-physiology of the automatic urinary bladder, suggests that as the action of thyroid is antagonistic to adrenalin and adrenalin stimulates the sympathetic system in such a way as to relax the involuntary muscles, if then there is a lack of thyroid as in hypo-thyroidism the adrenals are unopposed. Consequently the involuntary sphincters are more easily relaxed. Giving thyroid adjusts the balance, stimulating the sphincter to tone up and close.

With regard to pituitrin, McClintic holds that it acts by its tonic action on the unstriped muscle.

The fifth type of group is really not a true division, but one so often sees enuresis in the debilitated child, frequently the weaker of twins, or, as I have many times noted, in the premature child, who react so well to general tonic treatment (vitamin D and A), ultra-violet rays, etc., without recourse to belladonna and other methods of treating enuresis, that I venture to class them separately.

Finally, one should note that nocturnal enuresis may be an early sign of epilepsy. If the family history be suspicious, this sign must be carefully watched.

In conclusion, I have endeavoured to emphasise that enuresis is a symptom of a nervous instability —I would rather term it that than a neurosis, but I prefer even more to regard it as an autonomic system disease in which the vegetative nervous system is at fault. The enuretic is an individual whose neuromuscular micturition mechanism is not normally stabilised. Many factors which do not affect the normal child act as adverse stimuli in the susceptible incontinent child.

I have attempted to classify in groups, types of enuretics, so as to make them clinically more easily recognised, and with a view to choosing the approved therapeutic measures (in the widest sense) which should be adopted. I will repeat these classes or groups :—

1. Those in which some palpable physical irritating stimuli exist—worms, over-distension of bladder, cystitis, etc. The treatment is obvious.

2. The hyper-sensitive, neuropathic or nervy type, in which the instability is a symptom which may be regarded in the same light as other symptoms, such as cyclic vomiting, ketonuria, vagotonia, etc., which are more commonly found in the nervy child. They respond to dietetic and medicinal measures combined with re-adjustment of environment and gentle re-education.

3. The so-called psychopathic child, in whom the enuresis is more a behaviour complex, and the treatment required is for the most part psychological.

4. Endocrine dysharmony, particularly hypothyroidism, leads to a loss of inhibition. Giving thyroid in small doses is indicated, whilst pituitrin by its tonic effect on unstriped muscle is a good adjuvant.

5. The debilitated child, often convalescent from some illness. General tonic treatment is indicated.

In all cases atropine or belladonna is the specific drug of choice. In the management of the case the closest co-operation and patience between the doctor, the child, the parent and the teacher is essential.

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Why Do My Patients Leave Me?

By C. P. Theron, Esq., M.B., Ch.B. Ed.

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(*concluded*)

He treats the case, and, if it is a prolonged case, unceremoniously remains in attendance, or he might even report to me as having treated such or such a patient of mine. But at a future illness of that same patient, he or she is so charmed with this their latest acquired affection that he is called in again. "Seeing that the doctor has attended to me once before, I thought I would just stick to him now. He was so kind and good to me, and his treatment did me such a lot of good." Another one gone.

The same thing happens during an indisposition, where, through my own illness or that of one of my own kith and kin, I am unable to leave their bedside. Or during a time that I am otherwise engaged, and my patient is either unable through emergency, or unwilling through impatience, to wait until such time as I can attend to him.

I only mention misfortune in treatment and absolute bad luck as a cause. With one family I have all the misfortunes imaginable. The confinement is a mess-up; the patient does not react to treatment; the operation is followed by every imaginable unforeseen complication. I lose one after another in the family, and the very first time they consult the other man the luck turns, and I am turned out. Not my bad luck, but my incompetence, is proclaimed. Not my colleague's good luck, but his smartness, is extolled.

4. Now to vent my spleen on the patients themselves. Some patients die, and, of course, they are gone. Others leave the country, and they, too, are gone. Then you get the chronics. I get tired of them, and, after patiently swallowing every remedy I might have thrust down their throats and submitting to every torture I might have subjected them to, they get sick and tired of the very sight of me, and I don't blame them. So they leave me.

The incurables; who can blame them if they leave me to clutch at any straw in the vain hope of relief or cure? For a time they pull round a bit, for "hope lives eternally in the human breast," and they proclaim the man who has instilled that hope in them, whilst I, poor devil, get relegated to the "has-beens," and, although eventually they go the way of all flesh, still, when they left me they took a retinue of friends and relatives with them.

The hypochondriac to whose whims I refuse to pander, and whose stories of innumerable ills I refuse to believe, leaves me because I take no interest in him.

Then you get the great host of dissatisfied patients. Dissatisfied because I do not visit them often enough. Dissatisfied because I visit them too often just to make money out of them. Dissatisfied because my charges are too high, and strangely, those dissatisfied because my charges are too low, minimising the enormity of their complaint by the insignificance of my fee.

The patient who owes me money leaves me. He cannot pay me at the present moment, and either because he is ashamed of his debt or is

afraid that he might be shown the door and refused attendance, goes to another doctor and opens a fresh account there. Or he is one who does not pay and does not intend to pay either. He runs up his account until I remind him in no unequivocable terms of his indebtedness to me, or even take more drastic steps to recover my lawful dues, and so with a resentful show of injured dignity he leaves me.

Then I come to the patient who owes me not money, but a debt of gratitude generally for having saved his life or some such trifle. And here we come across a curious, seemingly inexplicable phenomenon.

Why is it that so often a patient who owes you his life, his everything, leaves you, and not only leaves you, but actually goes and slanders you into the bargain? By no means a rare occurrence. At first I could not understand it, and it used to hurt me terribly until I came to look at the psychological aspect of the matter. Human nature is such that it hates being under an obligation to anybody. So long as I owe anybody anything for which I have not paid fully, I feel instinctively inferior to that person. I even hate him until I have paid him and can look him square in the face on an equal footing; and similarly, if a patient owes me his life, he feels under an obligation to me, my inferior, and hates me until he has squared me and can face me on equal terms. The higher the fee, within certain limits, the more he realises that he has paid me substantially for value received, and that is why I said a little while ago, he leaves me because my charges are too low.

I wonder whether you will still allow me a little morbid introspection to see what there is in myself that makes my patients leave me. Foremost, I would put staleness. Not necessarily that I become old-fashioned and stick to methods which were in vogue when I was a student, but somehow there is an air of lack of interest, a boredom, in my relations with my patients. Vivacity and keenness are lacking. Many of us have noticed it in ourselves, and have been unable to lay the finger on the cause of it. Is it stagnation? Is it an endocrine degeneration? What is it? Or is it due to something far simpler or to other interests which have imperceptibly crept in. Whereas perhaps formerly we used to live for our work, we now live by our work.

In one case politics has crept in. In another some other outside interest, which at first was a hobby, then became a rival interest, and at last a dominating purpose. Municipal affairs, farming, speculation, even sport. The old saying remains true: "You cannot serve two masters." And patients are quick enough to notice the slightest tendency in that direction long before I have a suspicion of it myself, and they leave me to go to the man who as yet has no other interests and is still as keen as mustard.

I also find that I am less cocksure than I was in my younger days. After, for instance, treating a certain condition in a certain way successfully eight times, shall I say, I come to a similar case, number nine, in which the same treatment is of no avail and utterly fails. The result is, when I come to case number ten I am not so cocksure about the prognosis as to my treatment as I was when I still treated number eight. So that all I can say to the patient is: "This line of treatment usually succeeds, and I have every hope that it will succeed in your case also." Whereas my younger colleague says: "I have always been successful in cases like yours (and quite truthfully, too, as he has not yet had his number nine, the failure), and therefore I am certain it will succeed in your case too." A patient does not want probabilities, however rosy the odds may be. He wants positive assurances, and honestly, I cannot give him that, and so he leaves me.

Most of us, as we get older, unless we have degenerated into charlatans and quacks, have gradually become somewhat honest, and somehow we cannot hide the increasing conviction of our stupendous ignorance of the true cause and effect of all the ills that mortal flesh is heir to, or of our paralytic impotence when faced with Nature's determination to slay our patient. The result again is loss of cocksureness. Not necessarily a strangulation of our self-confidence by a growing inferiority complex when faced with a crisis that calls forth all our energy and determination to conquer all obstacles, but rather a gradual dawning of a faint glimmer of that true knowledge which even in ancient days was considered the supreme wisdom. "Know thyself." And as we get to know ourselves better and begin to realise our limitations, the fact gradually dawns on our patients too, and their confidence in our infallibility begins to wane. No half-measures for the patient. Not "It is possible, or even most probable, to cure," but "It will most certainly cure." "The man who says he can guarantee my cure, he is the man for me," says my patient, and he leaves me for that man.

Our greatest degeneration in the eyes of our patients, however, is that we become actually, or apparently, slipshod. I get so beastly fed-up with all the piffling little ailments, the coughs and headaches, the so-called pain in the kidneys, and stomach-aches that I start dishing out my stock remedies even before they have finished their tale of woe or recounted their list of complaints, which

to them are of such paramount importance. From the native who wants you to " koppel " him with the " pomp "—in other words, apply the stethoscope to his cranium, or buttock, or wherever the pain might be, when his voice or the fœtor of his breath tells its unequivocal tale—to the man who wants you to make a rectal examination for piles when he has styes, I can't be bothered with such tomfoolery, nor can I put up with the hypochondriac with his imaginary ailments. Consequently, they leave me for others, who devote more time to the diagnosis and the investigation of the obvious.

I am not now speaking of cases who leave me because through carelessness I missed a serious condition, and failed in a true diagnosis. If I lose them, and it does happen to the best of us sometimes, well, I can only say I deserve to lose them ; but alas, once gone, they drag a whole company of friends and relatives with them.

Then again, through the ingratitude and deceit, the double-faced and underhand treatment we often experience from many a patient, I find that I become bitter and cynical, and treat every patient as a potential deserter. Annoyed at all my bad debts, I get impatient, and try to strike blood out of a stone in an honest patient, who is really down on his luck, and who, in time, would gratefully have paid me every penny he owes me, but whom I now hurt by my cruelty and want of compassion. He struggles to get the money together. He pays me, yes ; but he also leaves me.

These are but a few of the reasons I have discovered why my patients leave me. I dare say you can all add to the list of causes.

Thus they go, and as I look back on the years behind me and see them dropping off one after the other, I am faced with an even more puzzling problem : " How is it that I have any patients left at all ? " And this time I can say in all sincerity, " God knows. I don't."

The Suitability of Sodium Ricinoleate to the Treatment of Acute Gingivitis

By J. Wheatley, April, 1931

MR. PRESIDENT and GENTLEMEN,—Gingivitis is now recognised by most authorities of our time as being inseparably linked with that condition called " pyorrhœa alveolaris." It is, in fact, difficult clinically to differentiate between a well-established gingivitis with its familiar and easily recognisable signs and incipient pyorrhœa, with signs not so easily recognised macroscopically.

That pyorrhœa alveolaris is one of the most prevalent, most discussed, and least generally understood of all the diseases of mankind can hardly be doubted, in spite of the tremendous volume of research into its ætiology. Even the name it bears does not indicate the true nature of the morbid state. The advertisement which somewhat baldly states that four out of five have it may conceivably be exaggerating. There are no reliable statistics available, but, judging purely from the oral condition exhibited by many patients attending the gas extraction rooms of this hospital, pyorrhœa would seem to account for many more teeth than dental caries.

Apart from the seriousness attaching to the actual loss of the teeth with replacement by mechanical means approximately 75 per cent. less efficient, the damage done to their one-time possessor during the period leading up to their condemnation and loss is considerable, and its true extent is only recently being realised.

The work of James and Counsell, Talbot, Znamensky and many others supports the now generally accepted view that the condition is heralded by an initial gingivitis as its earliest manifestation—this observation alone providing adequate stimulus, if such were necessary, toward both prophylactic and remedial forms of treatment of gingivitis.

The object of this paper is to present for your consideration an account of the properties, theories of action, mode of application and clinical results which have attended the use of sodium ricinoleate in the treatment of certain cases of acute gingivitis, and to express the conviction that, while superseding none, this drug is a valuable addition to the number of local applications available for this purpose.

Sodium ricinoleate, as its name implies, is a soap. It is, in fact, castor-oil soap, a sodium salt of ricinoleic acid, which is an unsaturated hydroxy-acid present in castor oil as the triglyceride.

It is presumed that the use of this substance by the dental profession of this country is almost nil, as inquiries at the various leading firms of manufacturing chemists have yielded nothing but the barest information regarding it, and it also appears

to be dispensed very rarely. A search through the standard works on *materia medica* reveals nothing as to its nature or value.

In America, however, it has been employed with some success in the treatment of acute periodontal disease, an account of three cases treated having recently appeared in the *Dental Cosmos*[1]. Research work with the soap has been carried out by W. P. Larson, Professor of Bacteriology of the University of Minnesota, U.S.A. This work has been directed towards determining the effect of sodium ricinoleate upon bacteria—their toxins and culture media.

The organisms coming under observation were mainly those elaborating soluble extra-cellular toxins, and therefore were not those commonly isolated from the gums and teeth; pneumococci and streptococci were also worked with, however.

The application of the results obtained by Larson and his collaborators to the study of the mouth bacteria follows as a natural sequence, and it was probably the study of this work which first suggested the use of sodium ricinoleate in the treatment of gingivitis, where bacterial action plays so large a part. The principles involved and the conclusions arrived at in the investigations of Larson will later be recounted in order that a clear idea of the action of sodium ricinoleate may be obtained.

In the treatment of disease, early recognition and eradication of the cause is a rational mode of procedure. If we examine any of the recognised causes of gingivitis, whether due to local or general influences, it is readily seen that each one predisposes to stagnation conditions.

J. G. Turner[2] has summarised the ætiology of most dental disease in the word "stagnation," with its constant accompaniment of bacterial action. It is impossible to imagine conditions of stagnation of organic matter without the additional picture of virile exuberant bacterial life—vast quantities of micro-organisms whose mission, as we know, is the breaking down of the complex substances lying idle into simple elements. We know that stagnation in the mouth around the necks of the teeth results in the formation of the gingival trough hitherto accounted normal in connection with fully erupted teeth, but recently shown by James and Counsell[3] to be pathological, and that this space is furnished from its inception with all the properties considered necessary to a bacterial incubator and culture medium combined; here is optimum temperature and darkness, food from stagnating protein and carbohydrate, inorganic salts and moisture from the saliva.

All bacteriologists are unanimous in their findings that gingivitis arising from whatever cause not primarily bacterial in origin is later associated with a varying increase in the number and diversity of the mouth organisms which, under such circumstances as those just mentioned, is to be expected.

Thus it would seem that, after having removed the primary cause of injury, the importance of secondary infection in the prolongation of inflammatory conditions of the gums cannot be overestimated, and the ideal of succeeding intervention should be designed to assist the patient's natural defensive armament against these microscopical foes—to destroy them and their products, to obliterate all situations where they might rest and multiply, and to do all this without causing further damage to the tissue we are attempting to heal.

Physiological methods are usually the only successful ones, and any form of intervention which adds unnecessarily to the already heavy load borne by the diseased tissue is not physiological and is to be deprecated. In acute gingivitis, the local application of 90 per cent. carbolic acid, strong trichloracetic acid and allied caustic drugs is favoured by some.

These drugs, while appearing to clean up the gum margins and effecting an immediately dramatic change in their appearance, do so in a temporary manner by the wholesale removal of tissue.

These powerful caustics are not even self-limiting in action, and no one can say with certainty how long this action continues; they do not discriminate between the healthy and diseased cells, both being ruthlessly burned away, leaving the gum, its epithelium destroyed and a great part of the submucosa, dying or dead, in a much weakened state and helpless against further infection. Are inflammatory conditions in other important structures of our bodies treated in so drastic a manner, and must it be considered necessary to destroy an uncertain amount of the oral mucous membrane in order to eliminate the cause of inflammation? Surely such practices are retrogressive and savour of those current in the spacious days of wooden walls, when surgery owed much to boiling pitch and red-hot irons.

Destructive criticism has been levelled against the use of the caustics, and something must be offered in return; what manner of substance have we which will fulfil the required conditions?

Kemp[4] states "that the effective germicide must have a surface tension that will permit it to enter the most minute crevices; it must diffuse readily through a living membrane (a bacterial cell wall), and it should show a marked selectivity for the organism to be killed"—add to this the proviso that the germicide should be innocuous to living tissues and we have a collection of demands which at first sight appears unattainable.

It is hoped to show that soap and sodium ricinoleate in particular fulfil these conditions—that it has a very definite bactericidal action and is selective for the gram positive cocci, notably streptococci, which have lately come to be regarded as the causal organism of acute phases of inflammation.

This action is made more possible by the ability of the soap to lower surface tension below any limits obtainable by crystalloids and to have a diffusion coefficient that makes it possible for its molecules to pass through living membranes more rapidly than those of the common disinfectants which are, in the main, crystalloids.

In 1921, Larson and Edmond Nelson[5] reported that pneumococci and streptococci would not grow in the presence of even small quantities of castor-oil soap. Larson states that if a solution of sodium ricinoleate be added to a virulent culture of the pneumococcus so that the final dilution of soap is as low as 0.1 per cent., the micro-organism loses its pathogenicity instantly, and 100 c.c. or more of such a culture may be injected intraperitoneally into rabbits without ill effects; 24 hours after such an injection large amounts of agglutinins are present in the blood stream. Following such treatment the animals resist many lethal doses of pneumococci.

These workers studied the effect of sodium ricinoleate upon one strain of streptococcus scarlatinæ and showed that treatment with a 0.5 per cent. solution destroyed its power of growth upon culture media after five minutes. Streptococci so treated with soap produced agglutinins in rabbits within 24 hours following intraperitoneal injection.

The relation of surface tension[6] to bacterial growth has been ably demonstrated by Larson and his colleagues, who found that the pellicle-forming bacteria, such as the tubercle bacillus, b. subtilis and others of that group which habitually grow from the surface of liquid media, would grow throughout the medium by depressing its surface tension from 50 dynes—the surface tension of ordinary broth—to 40-45 dynes per square millimetre.

By analogy with the floating needle experiment it may be assumed that when the pellicle-forming bacteria are properly "wetted" by the lowering of surface tension, they no longer grow only on the surface of the medium, but throughout the body of the broth or even at the bottom of the flask. *Bacteria such as the pneumococcus and streptococcus will not grow on low surface media, and thus are specifically affected by sodium ricinoleate,* as will be seen later.

Not only are the actual bacteria affected by the lowering of surface tension, but their toxins are rendered harmless. These workers subjected tetanus toxin, diphtheritic toxin and botulinus endo- and exo- toxins to the action of castor-oil soap. The tetanic and diphtheritic toxins were found to be completely detoxicated when sufficient soap had been added to reduce the surface tension below 40 dynes.

Guinea pigs injected with 100 lethal doses of the soap-toxin mixture fail to develop symptoms.

Actinomyces gypsoides which elaborates the botulinus toxin—when shaken in a 2 per cent. solution of this soap—loses its pathogenicity and its toxin is completely neutralised.

These reactions obtained with sodium ricinoleate suggest that the same properties may be associated with other soaps to a greater or lesser degree. Experiments by Larson[7] with the soaps of the lowermost members of the fatty acid series proved that these soaps—the oleates, stearates and palmitates—were entirely devoid of detoxicant or bactericidal action. Similar conclusions were reached by Walker[8] in 1923.

Higher in the organic scale the more complex soaps of lauric, myristic and hendecenoic acids were found to possess these properties to a certain extent, *but they did not compare with sodium ricinoleate in these respects.*

Larson and his collaborators found that the soaps which exerted a detoxicant action differed from other soaps in their physical properties in that they formed clear or nearly clear solutions in physiological sodium chloride solution and dialysed readily through hardened collodium sacs. They were also found to be greater depressants of surface tension than other soaps in equivalent concentrations.

A further observation was that the power of toxin neutralisation by a soap varies directly with its solubility in water and inversely with its tendency to gel formation. These workers also remarked that a slightly turbid solution of sodium ricinoleate did not detoxicate as effectively as a perfectly clear solution, even though the surface tension of the two solutions was identical. Again, the addition of sodium oleate or stearate to sodium ricinoleate deprived the latter of its power to detoxicate; *the importance of this is recognised when it is known that inferior sodium ricinoleate often contains traces of these other soaps as impurities.* Colloidal calcium soap, blood serum, starch and nutrient broth, when present, have a similar effect. Larson explains this by supposing that the sodium ricinoleate is adsorbed into the surfaces of the millions of colloidal aggregates and other suspended particles in the solution, and is thus precluded from acting on the toxin molecules.

Thus the influence of the turbidity of our solution is also an important consideration when the

ricinoleate is to be employed as a local application in acute gingivitis. It suggested to Larson that the action of sodium ricinoleate depended on its adsorption into the toxin molecule with the result that equilibrium was disturbed in this molecule, rendering it temporarily, at least, unable to react with the tissue cells in the normal way.

A series of experiments[9] *showed that the toxin was not destroyed by the soap, but was apparently held up—imprisoned, as it were—to be slowly released at an undetermined rate.* The suggestion that the soap does not change the properties of the toxin molecule is supported by the further observation that both diphtheritic and tetanic toxins neutralised by sodium ricinoleate are excellent antigens, as both rabbits and guinea pigs may readily be immunised by injection of toxin-soap mixtures, *provided that the soap is present in sufficient concentration.* The effect of the concentration of sodium ricinoleate upon toxin neutralisation was determined by Larson and Halvorson in 1924.[10]

THE EFFECT OF CONCENTRATION UPON THE NEUTRALISATION OF TOXIN BY SOD. RICINOLEATE.—(Larson and Halvorson).

Volume and Dose of Toxin	Vol. & Concentration of Soap	Total Volume Soap + Toxin	Result of Inoculation
0.4 c.c. of L + diphtheritic toxin	1 c.c. of 1 per cent. soap	....	Death in 3 days
	1 c.c. „ 2 „ „	....	Death in 11 days
	1 c.c. „ 3 „ „	....	Death in 28 days
	1 c.c. „ 4 „ „	....	**Paralysis but recovery**
	1 c.c. „ 5 „ „	1.4 c.c.	Alive after 78 days
	1 c.c. „ 6 „ „	....	„ „ „ „
	1 c.c. „ 7 „ „	....	„ „ „ „
	1 c.c. „ 8 „ „	....	„ „ „ „
	1 c.c. „ 9 „ „	....	„ „ „ „

This was done by adding one lethal dose of diphtheritic toxin contained in a volume of 0.4 c.c. to each of a series of 1 c.c. samples of sodium ricinoleate varying in concentration from 1 per cent. to 9 per cent., allowing this soap-toxin mixture to stand for 15 minutes and then injecting it into guinea pigs. It will be seen that the animals died until the concentration of sodium ricinoleate and toxin was equal to 4 per cent. of the former, *i.e.*, the minimum concentration of the soap which protected was 4 per cent. This is another consideration of practical importance.

Let us now pass from these records of experimental research, which it is hoped will have emphasised the possibilities of this substance as a therapeutic agent, to the consideration of the main point of this paper—the actual significance of sodium ricinoleate in the treatment of acute gingivitis.

The appearance of the product first claims the attention, and this has been found to differ, two distinct variations having been in use on the cases treated. The first batch used almost exactly resembled soft golden-brown sugar candy, and was in the form of small irregular lumps; this variety of the ricinoleate does not agree with the description of the pure substance prepared by Halvorson[11] and used by Larson in his experiments. It dissolved in water to make a 33 per cent. solution by weight, the solution being a deep golden yellow, absolutely transparent and somewhat viscid. The properties of the second variety agree with those possessed by the experimental soap. This is in the form of a pure white amorphous powder and only soluble in water to make a 9 per cent. solution by weight, the resulting solution being thin, clear and of a pale straw colour; both solutions are alkaline to litmus. There does not appear to be much therapeutic significance to be drawn from these differences, and both solutions have produced almost identical results—if anything, the more rapid results were obtained using the more soluble variation, which might be construed by some as tending to bear out Larson's finding that detoxicant power varies directly with solubility.

In all, ten cases of acute gingivitis, including two of Vincent's angina, have been systematically treated with sodium ricinoleate, and of these, eight responded to treatment in a comparatively remarkable manner. Of the remaining two, one—a little girl from the children's department—made absolutely no headway at all, and is now having other treatment (with, I am afraid, equal lack of success). She is a mouth-breather, and may be said to be in unstable equilibrium dentally, as her permanent dentition is erupting. The other case, an adult, is also addicted to mouth-breathing, and, while the gums steadily improved under treatment, there was an immediate relapse when this was suspended.

These two cases will not, of course, clear up until normal breathing is reinstated—at least during the hours of sleep.

In the first four cases daily records of progress were made, these including photographs showing, first, the conditions before treatment was commenced, and, secondly, the gums when bacteriological and clinical evidence suggested that the point of maximum improvement obtainable by therapeutic means had been reached.

A résumé of these cases will now be given from notes made after each visit.

CASE I.

Miss E. B., æt. 20, attended dental out-patients on December 1st, 1930, with her mother. She was very listless and obviously ill; her mother stated that the girl had pyorrhœa and desired that all her teeth should be extracted.

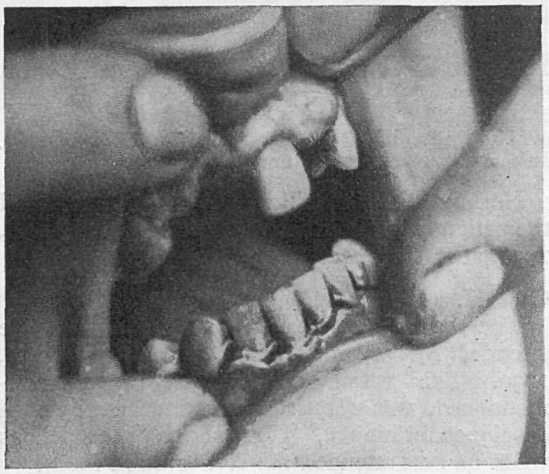

Fig. 1.
Miss E. B. Conditions before treatment.

The gums were congested, oozing with blood and covered with patches of desquamating epithelium. The interdental papillæ were ulcerated, and in most places entirely destroyed. There were deep pockets around the teeth, especially the lower incisors, which were markedly loose. These pockets did not contain pus, but were exuding blood and were also occupied by stagnating food debris; only a very small amount of subgingival tartar was present. The tongue was furred and the breath very foul. The tonsils were not enlarged.

One fact in the history given by the girl is very typical. She said that she first noticed a soreness of her gums seven days previously, when she had a bad cold. There was no bleeding or discharge at first, and she did not think that there was any foulness of the breath. There was certainly no offensive taste in the mouth at that time.

The condition grew rapidly worse, and after two days she became alarmed and went to a doctor. She was given a tonic and a mouth wash and advised to see a dentist. Unfortunately she saw a man who was unable to assist her beyond extracting a maxillary central incisor and giving her another mouth wash. She then attended out-patients at Guy's. Treatment was commenced at once. A direct smear from the pockets around the lower incisors was made as a routine measure for bacteriological examination.

The following simple procedure, which was adhered to in all subsequent cases before application of the remedy, was then carried out. The gums under treatment—in this case those in the lower incisor region—were completely isolated by means of wool rolls placed buccally and lingually and kept in position with clamps on the molars. Wool rolls were also placed in the maxillary sulci over the ends of Stenson's ducts. Saliva from the sublingual and submaxillary glands was drained away with an ejector.

The pockets under treatment were now mopped out with a succession of previously prepared wool pledgets. *Thus maximum possible dryness was obtained ready for the sodium ricinoleate solution to act undiluted and in a field relatively clear of suspended particles—the importance of these two factors have been already mentioned.*

In this and the following case the ricinoleate used was the previously mentioned viscid 33 per cent. solution. This was contained in a dappen glass and instilled into the pockets with the conveying tweezers, being allowed to remain in the pockets for 3-5 minutes. The patient watched this operation in a mirror in order that she might repeat it as well as possible each evening before going to bed.

The subgingival tartar on these teeth was next removed, the scalers being dipped into the ricinoleate solution before use. The lower gums were then gently massaged with the solution on the finger-tips, but, as they were so painful, this was stopped.

The patient was then supplied with a small bottle of the solution with some wool rolls, instructed to repeat the instillation and massage before retiring and asked to return next day. The bacteriologist's report on the first gum smear was as follows:—

"On direct examination, few degenerated polymorphs; few spirals; increase in coccobacillary flora present. Not a Vincent's angina."

At the next visit (December 2nd, 1930), the gums looked less congested and patient said that they "felt cleaner"; otherwise conditions were

much the same. The foregoing routine was carried out, *massage of the lower gums now being tolerated.*

On the third day (December 3rd, 1930), the colour and texture of the gums were much improved. Redness was no longer general, but confined to the margins. Bleeding had not occurred since the previous evening. Ulceration, while, of course, still present, looked much less extensive. The breath was still foul and the tongue heavily coated, but the bad taste was less noticeable. *The patient seemed much less despondent.* Treatment was carried out as before, the entire mandibular gums receiving attention.

On the fourth day (December 4th, 1930), the mandibular gums were maintaining a steady improvement, but the patient complained of the soreness of her upper gums, which so far had had no treatment. There was no calculus worthy of note, and the ricinoleate solution was applied and massaged as with the lower gums. Fœtor was still noticeable and tongue still coated, probably because there had been no mastication for some time owing to the gingivitis. The potassium chlorate and carbolic mouth-wash of the G.H.P. was ordered to be used hot after meals.

The fifth day (December 5th, 1930) found the upper gums no longer painful, but not markedly different clinically. Lower gums were pinker and firmer, and the fœtor had disappeared as the result of the mouth-wash. A direct smear from the pockets was reported on as follows :—

" On direct examination no active polymorphs ; still fuso-spiral infection ; less cocco-bacillary."

Improvement was now steady, the patient still coming for daily treatments, the average duration of which was 30 minutes. Gum smears were made from the lower incisor region at regular intervals, the next being on the ninth day. The report was returned on direct examination :—

" Very slight fuso-spiral infection, but no pus."

The next picture shows the case on the eleventh day. The mandibular gums were normal in colour and texture, but there was naturally very apparent evidence of bone destruction ; however, the pockets had entirely disappeared in this situation owing to the gum tissue becoming firmer on account of the treatment of the previously ulcerated margin. It will be seen that the interdental papillæ have been lost. Appearances were not quite so good in the upper gums and pockets still existed, a direct smear from the molar region being reported on as follows :—

" On direct examination, practically no fuso-spiral infection left ; no pus detected."

Instillation of the 33 per cent. sodium ricinoleate solution was carried out daily and a gingivectomy was performed on the 16th day to obliterate these pockets. The report on a smear from the interstitial aspect of the lower incisors stated :—

" On direct examination, epithelial debris only detected."

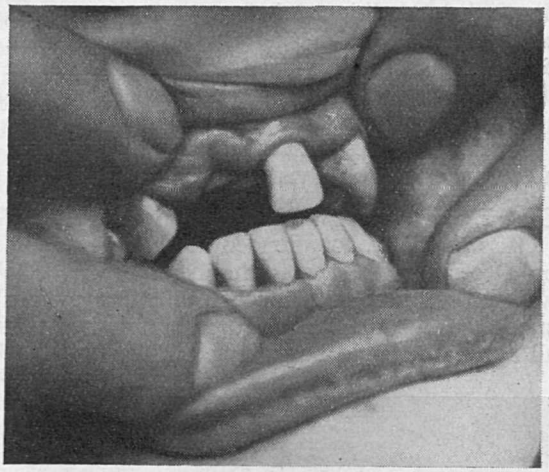

Fig. 2.

Miss E. B. Firm, healthy gum tissue after 11 days. In this case resection was unnecessary.

Healing of the maxillary gums was rapid, and the patient was discharged on the 22nd December, 1930, after three weeks.

CASE II.

The second case was D. E., a boy of 16. He attended Mr. Pearce's clinic on December 9th, 1930. This patient, in contrast to the first-mentioned, was robust and extraordinarily well developed for his age. Fig. 3 shows the conditions when he first attended the conservation room.

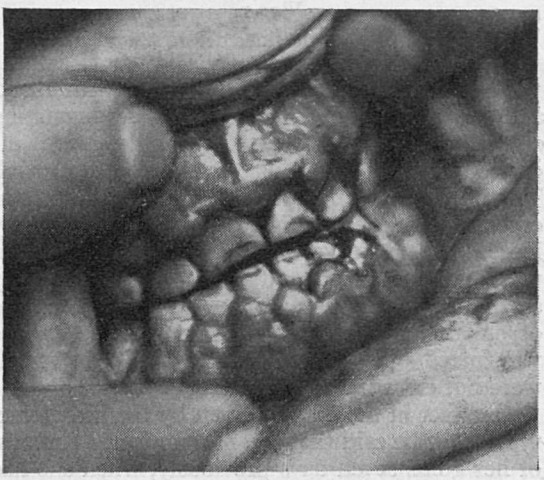

Fig. 3.

D. E. Showing hypertrophied pulpy gingivæ forming deep pockets filled with stagnating food debris.

There is seen to be considerable hypertrophy. The interdental papillæ being greatly enlarged all round the mouth; this was not so on the lingual and palatal aspects of the cheek teeth. The pockets thus formed were occupied by soft food debris and bled on very little provocation. There was a certain amount of soft tartar, and the gum tissue was pulpy and of a deep purplish red colour; there was the usual fœtor and bad taste in the mouth.

The boy stated that the gums had always seemed to cover his teeth, but that they had first become sore about 14 days previously. He gave a definite history of the eruption of all of his second molars during the preceding six months, and gum flaps still covered the distal parts of the crowns of the mandibular second molars.

He had had a part of his nasal septum removed during childhood, and appeared to be a mouth-breather.

It is highly probable that the acute stage of the gingivitis was precipitated by the eruption of his second molars—which were approximately four years late—and that this was superimposed on the chronic hypertrophy arising from the mouth breathing. The report on a direct smear from the lower incisal pockets was :—

" On direct examination many active and degenerated polymorphs; heavy fuso-spiral infection (not a Vincent's angina); few eosinophiles present, but no amœbæ detected."

The pockets around all the teeth were now cleared of food debris, and a rough scaling was performed all round the mouth. The scalers were dipped in the ricinoleate solution when the lower teeth were scaled, but were used dry on the upper teeth as an attempt at some sort of control.

The lower gums were now isolated and dried, and the 33 per cent. solution was run in as previously described. These gums were then massaged. The patient watched the application and massage in a hand-mirror and was instructed to repeat this at bed-time.

Next day (December 10th, 1930), patient volunteered that lower gums felt " cleaner and smoother," while the uppers were still the same. There was considerable desquamation of epithelium going on in the sulcus of the lower jaw. Both mandibular and maxillary gums were now treated with the ricinoleate.

On the 11th December, 1930, a slight improvement was noted in the upper gums, and patient said that they felt much easier and that the lower gums were as good as they had ever been; there was not such a difference as this would imply, however.

Desquamation was still proceeding apace, and had been noticed by the patient for the first time. (This desquamation was a constant feature of all the cases treated, and if not initially present, appeared after the first day. It may possibly be due to the action of this soap on mucous membrane.) The usual application and massage were performed.

Slower progress was made by this patient than by the previous one, *but there was a marked difference to be noted each time he attended the conservation room.* On the 16th December, 1930, after seven days of the applications, the patient again saw Mr. Pearce at his clinic; the amount of improvement caused some surprise and interest. The gums appeared much pinker and firmer and they did not bleed readily. A gum smear from the lower incisal pockets was reported on as follows :—

" On direct examination, only slight fuso-spiral infection, but still present; no active polymorphs or eosinophiles detected."

This improvement was maintained, and, after daily treatment for a further week in which the gums became quite firm, it was decided to obliterate the stagnation areas. Fig. 4 shows this case on the 23rd December, 1930, before gingivectomy.

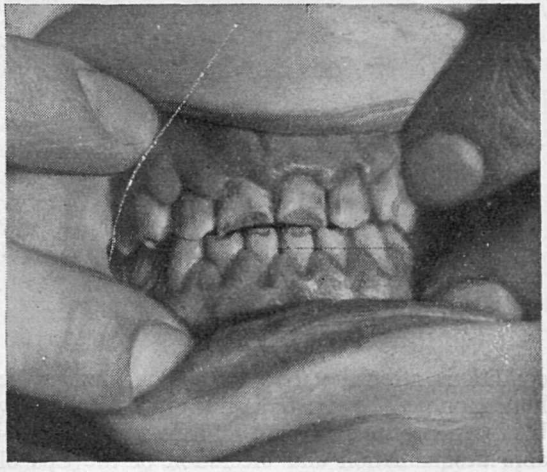

Fig. 4.

D. E. Marked improvement in gingival tone after 14 days. Gums now ready for resection.

The maxillary gums were first resected, this being carried out on the buccal and labial aspects of the teeth as far back as the mesial surfaces of the first molars. Some small pieces of adherent seruminal calculus which were disclosed by the operation were removed and the teeth polished. Healing appeared complete in ten days, and the operation was then repeated on the mandibular

gums, which took slightly longer to heal and were more sore. I saw the patient again at the beginning of this month, three months after his discharge. The gums were pink and firm and there was no further hypertrophy, but there was evidence of lack of oral cleanliness again, due probably to the effects of his mouth breathing.

The other two cases are examples of the reaction of Vincent's angina to this treatment, and in these cases the 9 per cent. solution was used.

CASE III.

Was M. P., a young man of 23 who attended Mr. Pritchard's clinic on January 21st, 1931. He was apathetic and ill, with pulse 120 and temperature 99.8°. The tongue was thickly coated and the characteristic fœtor well marked. His face and hands were covered with a cold sweat.

It was unfortunately not possible to get him photographed at once, and Fig. 5 represents the

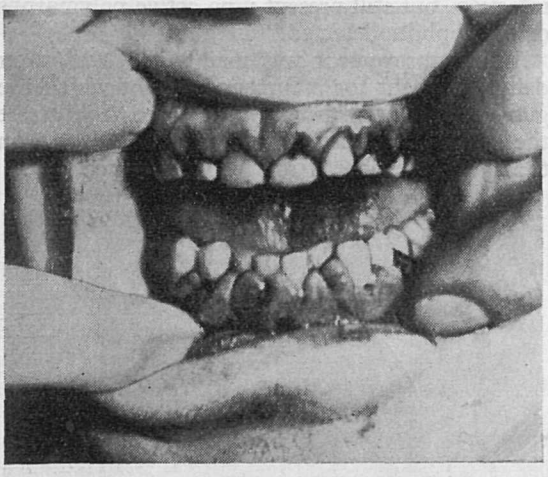

Fig. 5.

M. P. Condition of gums on second day.

conditions after the first day. The gums were hypertrophied, congested and pulpy, and they bled without intermission. There was considerable desquamation and ulceration of the tips of the interdental papillæ had occurred in the lower molar regions. There was a slough on the inside of the cheek opposite the lower left third molar. A flap of mucous membrane covered this tooth, and the pocket was crammed with stagnating matter, giving rise to pain and some trismus. The pockets around the teeth were occupied by calculus and soft food debris, and they exuded pus. Mr. Bulleid reported on a smear from the lower incisal pockets as follows : " On direct examination, very heavy fuso-spiral infection; b. fusiformis in marked ascendancy associated with S. Vincenti; some active pus cells; probably a Vincent's angina." A general clean up of the entire mouth was commenced immediately; the gums were isolated and dried as usual, and 9 per cent. sodium ricinoleate solution was instilled into the pockets. As much calculus as possible was removed without lacerating the gums. The contents of the pocket round the right lower 8 were removed by syringing out with warm Eusol.

The patient was instructed to apply the 9 per cent. solution at bedtime and after breakfast, and was supplied with some wool rolls. He was given a purgative and the pot. chlor. carbolicum mouth-wash of the G.H.P., to be used hot after all meals and once between meals, *i.e.*, six times daily.

Next day (January 22nd, 1931) he was in brighter spirits, the fœtor was much decreased and gums looked slightly better, and he said that his mouth was feeling much fresher. Instillation and massage was repeated. Pulse and temperature had dropped from 120 and 99.8° to 96 and 99.2°. A continued and rapid improvement was now maintained, instillation and massage being repeated daily; the mouth-wash was also used continually. After three days, general symptoms had largely disappeared and the patient was able to eat and sleep moderately well. The trismus was less and the gums looked pink, *but were still very soft and bled readily on pressure.* The report on a direct smear was : " On direct examination, little pus; fuso-spiral infection very much less."

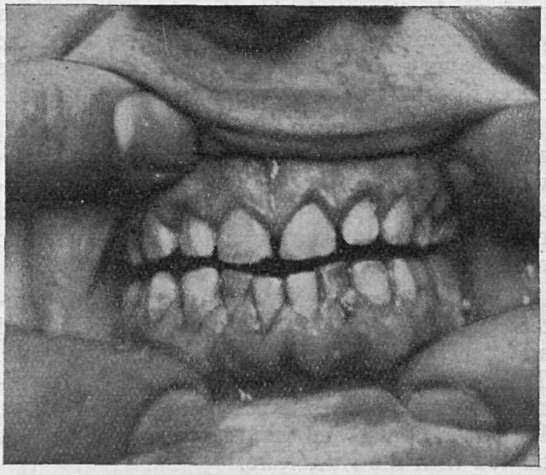

Fig. 6.

M. P. Considerably improved and firmer gums after eight days. Resection may now be performed.

Fig. 6 shows the case on January 28th, after one week, when he again attended the clinic.

Mr. Pritchard noted a great improvement, and discussed the advisability of the extraction of the third molars to eradicate stagnation areas. He advised postponing the extraction of the left lower 8 for two or three days in order to be certain of avoiding sequelæ.

The gums were bleeding only very occasionally, and admitted of quite vigorous massage. Their pink colour was notable.

Treatment was continued for a further five days, during which the right lower 8 was removed under general anæsthetic. The appearance of the gum tissue on February 2nd suggested that gingivectomy could be performed without risk, and the lower gums were resected to the depth of the pockets buccally and lingually as far back as the first molars. These gums and the socket of the left lower 8 were healing well, and one week later (February 9th, 1931) the operation was repeated on the upper gums palatally and buccally. Healing was complete in 13 days, and, after removal of the remaining third molars, the patient was discharged. He will come up again for inspection at the end of this month (April).

CASE IV.

And the last one to be described was the second case of Vincent's angina in which the 9 per cent. solution was employed. The patient was N. E., a young man of 28, who was sent up to Dental Out-patients by his doctor on February 10th, 1931, about the condition of his mouth. Fig. 7 represents this on that day.

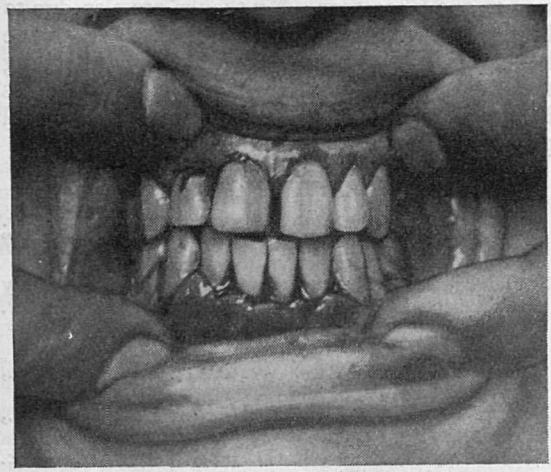

Fig. 7.

N. E. Acute gingivitis (Vincent's angina). Showing congested ulcerated gum margins.

The gums presented the usual appearances common to such cases—they were very soft, oozing with blood and of a dark purple colour. Ulceration of their margins existed all round the lower jaw and was confined to the molar regions in the maxilla. Large patches of desquamating epithelium were present on the gums and mucosa of the cheeks opposite the upper molars. Gingival pockets were deep, especially those in connection with the upper right first and second molars. They contained small amounts of calculus and were crammed with *materia alba*. *There was no pus.*

Except for a slight tonsillitis, the usual general symptoms, *e.g.*, pyrexia, constipation, anorexia and general malaise, were absent, and the patient was only conscious of feeling a little " below par." He stated that his gums had never been sore previously, but that they had always bled when he cleaned his teeth.

Fourteen days ago he " caught a chill," and the trouble dated from then. The condition progressed rapidly, but he did not see his doctor until ten days had elapsed, and what worried him most was the fœtor of his breath, which was most marked, and also the foul taste in his mouth. This case illustrates one result of delay in seeking treatment in a case of Vincent's—*the lower incisors had become very loose and several of the molar teeth were beyond saving for the same reason.* The report on a direct smear from the lower incisal pockets was returned as " Vincent's angina detected," and the patient's own doctor was informed of this in order that he might co-operate with any general treatment considered necessary.

On the first day (February 10th, 1931) the routine already outlined was carried out all round the mouth, the 9 per cent. solution being allowed to remain in the pockets for about five minutes. Coll. pot. chloratis carbolicum was ordered to be used hot after all meals in order to assist in reducing the fœtor.

Next day (February 11th, 1931) there was a marked improvement in the general appearance of the gums and in the colour especially. The fœtor and taste were still present, but to a less degree, and the patient said that the whole mouth felt easier. Treatment was carried out as before.

On the 12th February, 1931, the improvement was sustained. Instillation of the 9 per cent. solution was carried out all round the mouth, and, in view of the improvement, the lower incisors were carefully scaled, the instruments being dipped into the solution before use.

At the next visit (February 13th, 1931), *there was evidence of relapse due apparently to a reaction after scaling*, the tonsils were more hyperæmic, and the patient said that the gums were very sore. Clinically they appeared definitely redder than before scaling. Application of the solution on the

isolated gums was repeated. The tonsils were also included and the solution was applied with a sterile throat brush.

On the 14th February, 1931, the gums looked less inflamed, but the tonsils were about the same. Application of the 9 per cent. solution all round the mouth was repeated, the tonsils being again included. Fœtor and bad taste were now unnoticeable to the patient. The acute flare up was now dying down, and Fig. 8 shows the gums on

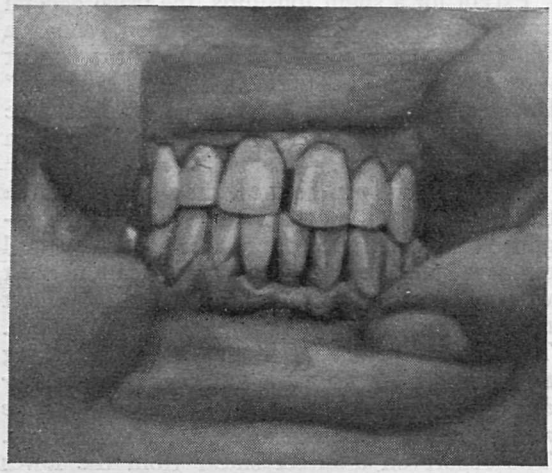

Fig. 8.

N. E. Subsidence of acute phase. Evidence of much bone destruction accentuated by shrinkage of firmer gums. Six days' treatment.

the 16th February, 1931, after six days of the ricinoleate applications. A gum smear from the upper right molar pockets was reported on as follows: "On direct examination, no pus; condition much improved; still some spiral forms present."

The patient continued with the application of the 9 per cent. solution at home, and attended hospital again three days later for extraction of his right lower 6, which was connected with a deep pocket and very loose. A mandibular injection of novocaine was used. There were no sequelæ, and four days later (23rd February, 1931) the right upper 7 and 6 were removed under a local anæsthetic for the same reasons. The patient was then discharged with instructions for the maintenence of rigid oral hygiene and to return in three months for inspection.

In conclusion, it may be anticipated that there are some who will ascribe the results obtained with sodium ricinoleate to some action other than, or in addition to, that stated to occur. While there is no doubt that the régime of strict oral cleanliness imposed on the patient during the treatment is responsible to a great extent for the success obtained, the rapidity with which cases cleared up cannot be wholly credited to this factor of cleanliness. It is therefore claimed that this product exerts a very definite therapeutic action along the lines indicated in the experiments with it.

Tests have been made to determine whether astringent action was associated with the effect, but these were inconclusive. The rate of blood flow in the arteries of the web of a frog's foot was observed microscopically by an independent observer and by myself.

Dilute sodium ricinoleate solution was dropped on the web from a pipette. The web of another frog was treated with the same dilution of tannic acid as a control. These tests resulted in the production of acute inflammation progressing to stasis. Stasis occurred slightly earlier with the dilute ricinoleate than with the dilute control astringent. Similar results were observed macroscopically on the conjunctivæ of rabbits. The similarity of the effect produced by these two solutions would lead to the inference that astringency is exerted, but other tests are necessary to settle this, and the question will receive further investigation.

It is also hoped to do further work with sodium ricinoleate on the mouth bacteria and their toxins. This will be the subject of a further paper, and is to be undertaken with the consent of Professor Eyre and the help of Mr. Arthur Bulleid, whom I wish to thank for his encouragement and practical assistance in reporting on the many gum smears sent to the laboratory. My thanks are also due to Professor Pembrey for allowing me to make the last-described tests, to Mr. Pearce for authorising the taking of the photographs, and to Miss Newman, of the Light Department, for the actual photographic work.

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The Pavy Gymnasium

ON Thursday, May 28th, the Annual General Meeting of the Pavy Gymnasium was held in Class Room I. The President was in the Chair. The Minutes of the last meeting having been passed, the Chairman read a letter from E. L. Monkhouse, deploring his inability to attend, and offering his resignation of the captaincy of the Gymnasium, but assuring the meeting of his continual interest in the affairs of the Pavy Gymnasium. His resignation was accepted by the meeting with genuine regret.

The secretaries of the various clubs then gave their reports. D. H. Irish was pleased to report an extremely successful season for the Fencing Club, which had won the majority of a large number of matches. The Secretary of the Boxing Club reported a fairly successful season, but appealed for more members who would take an interest in the welfare of the Club.

The secretary of the Gymnastic Section also deplored the lack of members, but reported, nevertheless, a season of progress.

The meeting then proceeded to the election of officers. Mr. Ormond was re-elected President, and Mr. Mollison, treasurer. The vice-presidents were all re-elected.

D. H. Irish was unanimously elected Captain of the Pavy Gymnasium, in succession to Monkhouse. The following officials for the season were elected :—

Hon. Secretary for Fencing : J. R. Forbes.
Committee Member : S. W. Wright.
Hon. Secretary for Boxing : R. A. Johnson.
Committee Member : A. State.
Hon. Secretary for Gymnastics : E. O. Clough.
Committee Member : W. Bailey.

Reference was made to the forthcoming Display. Much hard work had been done by the members, particularly by D. H. Irish, and a successful effort was anticipated.

After a few affairs of minor importance had been discussed, the meeting closed with a vote of thanks to E. L. Monkhouse for his past services to the Club, and a vote of thanks to the President.

The Pavy Gymnasium Display

A VERY pleasant evening was provided for us on Saturday, the 30th of May, by an enthusiastic band of students and masseuses. The Pavy gymnasium was crowded, but it was very regrettable that so few members of the Staff were present.

The first item on the programme was a display by the gymnastic team led by the instructor, on the horizontal bars. We never had any idea that such perfect balance could be obtained by anyone outside the music-hall stage, and some of their more daring evolutions frankly left us quite breathless.

Next, the floor was cleared and a few bouts of exhibition boxing were staged. First, Alf Hewett amused us by his cat-and-mouse tactics with a large and enthusiastic student. Then there followed two bouts between a very tall man with an immense reach and a short man with a decidedly short reach. Contrary to all the rules of sport and to the natural inclination of the crowd towards the smaller fighter, the balance swung decidedly in favour of the tall man.

Following this, a very interesting display of sabre fighting was given, and so excited grew one of the competitors that he did not notice that the button was off his weapon, and we were saved from the pitiable sight of bloodshed only by Captain Pinkerton noticing the accident in time to prevent such a calamity. These bouts were, perhaps, the most popular item in the whole entertainment, apart from the display by the Massage girls shortly to be described.

More gymnastics were then carried out over, under and through the horizontal bars ; and then, the floor being cleared, Sister Angove spoke a few words on the value of medical gymnastics, and then let loose her hordes of well-known performing girls.

These were, in the words of Cæsar, divided into two camps, those having stockings on their legs and those who had not, and both cohorts proceeded to exercise every muscle in the human body, one by one, and all together in a most fascinating and rhythmic manner.

After the tumultuous applause had died down, the audience sought, some the open air and some coffee in the Spit.

After the interval during which refreshments were provided by the Guy's Hospital College Catering Company, a short demonstration of foil play was provided, and contrasted delightfully with the next item, a punch-ball display by Alf. Hewitt. Whereas the former was a beautiful example of the art of skilled and rapid wrist-work, the latter gave some conception of the deadliness

of a pair of gloves when the strength behind them is provided by muscular shoulders and assisted by nimble foot-work. Afterwards, a series of foil bouts, the full significance of which could be appreciated only by those who were thoroughly familiar with such terms as "riposte."

The gymnastic team then gave a most excellent display of horse-vaulting, making such full use of the spring-board that the spectators were at any moment expecting to see one of them concussed by hitting his head against the ceiling.

After two epée bouts, the floor was cleared and covered with mattresses, and the real fun of the evening commenced. A large and muscular gentleman with an expression of grim determination on his face led on his companion, a man of considerably smaller physical calibre. A third gentleman made a few introductory remarks about the history and practice of jiu-jitsu, during the course of which he advised the audience not to indulge too freely in the sport until they had learnt the art of falling painlessly. We were then treated to one of the most graphic displays of jiu-jitsu one can imagine. The smaller gentleman, who, as it seemed to us, was rather stupidly aggressive, was rewarded for his pains on each occasion only by being effectively thrown to the ground. One of the most charming features of this art is the apparent ease with which it is possible to dislocate almost any joint in one's opponent's body. The small gentleman was mercifully spared this part of the proceedings, and his more burly companion kindly consented to "leggo" whenever his defeated opponent tapped the floor. At one time we did think he might get the better of his more powerful *vis-a-vis*, and that was when he suddenly produced a large knife to aid him in the fight; but we were doomed to disappointment, for the next moment the knife was hurled clattering along the floor, whereas its owner had already adopted his habitual attitude of ignominiously sprawling on the ground.

Mr. Ormond expressed for us our feelings of genuine appreciation and enjoyment. Those responsible for the display have the right to feel proud of so successful an evening.

Gymnastic Team—

L. J. Bailey, E. O. Clough, W. J. Drummond, C. T. Hagger, R. L. V. Henderson, E. C. Jenet.

Fencing—

Sabre lessons: D. H. Irish, S. W. Wright.

Sabre bouts: E. L. Monkhouse *v.* S. W. Wright (Wright won 4—1); D. H. Irish *v.* J. F. Morris (Morris won 4—2).

Foil lessons: J. R. Forbes and B. Machado.

Foil bouts: J. R. Forbes *v.* T. B. Pitts (Pitts won 4—2); E. L. Monkhouse *v.* D. M. Paterson (Monkhouse won 4—3).

Epée bouts: H. M. Hodgkin *v.* G. W. Lawrence (Lawrence won); E. L. Monkhouse *v.* T. B. Pitts (Pitts won).

Boxing—

Bouts: C. R. Stone *v.* C. G. Palmer; I. Timpson *v.* R. A. Johnson; A. State *v.* Alf. Hewitt. One round each.

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1. Horizontal bar display by gymnastic team and the instructor Simmons.
2. Sabre lessons. Instructors, Capt. Pinkerton and Mr. Cassford.
3. Boxing.
4. Sabre bouts for best of 7 hits.
5. Horizontal bar display by gymnastic team and Mr. Simmons.
6. Demonstration of medical gymnastics by Massage students after introductory speech by Miss Angove.
7. Demonstration foil lessons.
8. Punch-ball display by Alf. Hewitt.
9. Foil bouts, best of 7 hits.
10. Vaulting-horse display by gymnasts.
11. Epée bouts; 1 hit.
12. Jiu-jitsu demonstration by fencing instructors, Capt. Pinkerton and Mr. Cassford.

Two "Golden Weddings"

On April 18th, 1931, the church bells were pealed and the "village" of Beckenham was on fete to celebrate a double golden wedding. One of the participators, Mr. T. W. Thornton, has been for many years a staunch friend of Guy's. He had, before the war, to submit to an operation in Bright, and every Christmas since then he has taken part in the Out-Patients' Children's Tea, and has been a generous contributor to this Fund. We offer Mr. and Mrs. Thornton our heartiest congratulations, and shall hope to see them at Guy's for many Christmasses to come.

Reviews

A Manual of Midwifery. By T. WATTS EDEN, M.D., F.R.C.S., and EARDLEY HOLLAND, M.D., F.R.C.S. 7th Edition. Published by Messrs. J. & A. Churchill, Ltd. *Price* 21*s.*

IT is six years since the last edition of this standard work appeared, and the chief reason for the production of this new edition is that the book has been out of print for over a year. Although the book is lengthened by about 50 pages, there is very little that is new in it, and that, so far from being a condemnation, is, to our mind, high praise. Midwifery very adequately exemplifies the saying that "Necessity is the mother of invention," for since the abnormalities of child-birth and their prevention have been a matter of urgency throughout the ages, the standard methods of dealing with them have been satisfactorily worked out not in the last decade, but a century ago.

A valuable addition to the present edition is a short bibliography at the end of each chapter.

The recent work of Parkes and Shaw on ovarian hormones is dealt with shortly, though the authors wisely point out that our knowledge of this subject is by no means complete. The Zondek-Ascheim test for pregnancy is described, and the subject of ante-natal supervision is discussed in more detail than in the previous edition.

The section on pelvic contraction has been re-written and elaborated to fit in with the modern British views on the induction of labour in relation to disproportion. Emphasis has rightly been laid on "droplet infection" in the ætiology of puerperal sepsis, and Dr. A. K. Tallerman has taken over and completely revised the chapter on the new-born child.

The illustrations and plates are excellent, and the type is sufficiently large and clear to save the student's eyes from any undue strain. The subject matter is as well set out as in any other of the standard text-books on obstetrics, and the student will not regret having placed his faith in the authors either from the point of view of examinations or of the future practice of midwifery.

If It Had Happened Otherwise; Lapses into Imaginary History. Edited by J. C. SQUIRE. Published by Messrs. Longmans, Green & Co. *Price* 21*s.*

ONE is, unfortunately, too frequently apt to find oneself on the horns of a dilemma, and though it is necessary eventually to decide on one plan of campaign, one is prone to speculate, in after years, what would have happened if an alternative path of action had been followed. Such speculation, though interesting in the abstract, is nevertheless abortive inversely as the degree of imagination one possesses. Admit, then, the possibilities of such speculation as applied to the comparatively minor problems of one's own life and career and one can realise how much more fruitful might be speculations into some of the more famous dilemmas of history, especially if indulged in by men with a wealth of imagination.

Such, then, is the theme which has been developed by Mr. Squire with such unqualified success in the present volume, and he has invoked the aid of men of such eminence in the realms of history and *belles lettres* that this collection of articles might easily become a classic. For the benefit of those to whom history is but a forgotten subject of their school-days, each article is prefaced by a short historical account of what actually did happen. One of the most striking of these lapses of imagination is by Emil Ludwig, entitled, "If the Emperor Frederick had not had Cancer," in which he follows logically to their conclusion the "events" which would have made it impossible for the World War to have occurred. Father Ronald Knox "quotes" from the *Times* of Friday, June 31st, 1930, written for a public now grown accustomed to the readjustment of the country after the success of the General Strike.

It would occupy undue space and we should rightly be accused of unwarranted redundancy were we to attempt to describe in *précis* all, or indeed any, of the "stories" presented. The book will appeal obviously only to that section of the public who welcome reading as a stimulus to their imagination, and it will appeal to them spontaneously and without the incentive provided by the reviewer.

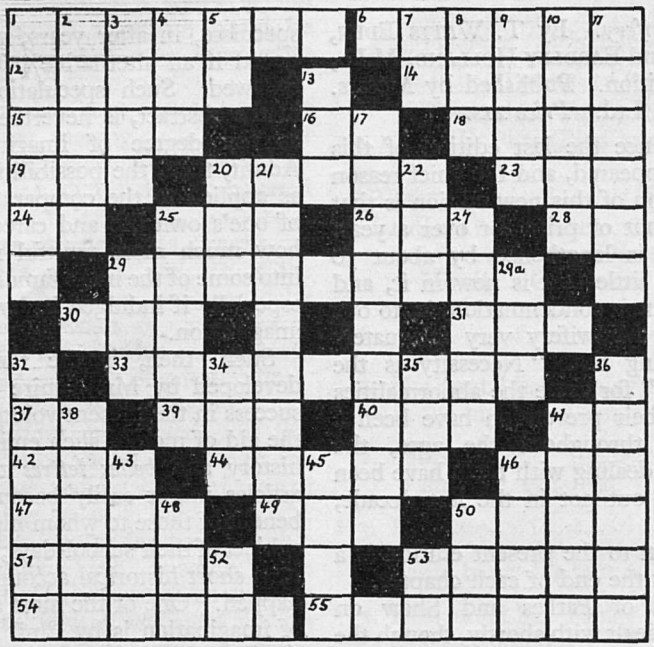
The Dental Dance

THE Dental Dance held on May 16th at the Northumberland Rooms was an outstanding success, thoroughly enjoyed by some 250 friends of the hospital.

During the evening gifts from two of the ladies present were raffled, resulting in £6 6*s.* being added to the amount donated to Guy's.

This is the first of a series of dances organised by the Dental School, and it is hoped that there will be many more equally successful evenings.

A Slightly Medical Crossword.



CLUES

Across

1. Things we must know for 1st Conjoint, Part II.
6. A cyst.
12. A likely price for a favourite.
14. Red in roses.
15. Feared by our infants.
16. All in Bloomsbury see this daily.
18. An aerial thrill.
19. She affects me thus.
20. Link with the past.
23. Titled gathering of gentlemen farmers (abbreviated)
24. Plural ending (dead).
25. Curtail thy " smite."
26. A rodent.
28. An Islamic connecting link.
29. We students use it in our cradles and to warm the neck.
30. Soda ?
31. To drink in the " Ship."
33. We bring into the world the squalling infant.
37. Negative.
39. She yielded first.
40. Tell me.
41. Anyone can get it at a 'Varsity.
42. Johnston—A.
44. Come in.
46. It's human.
47. Concerning mother.
49. Nurses give it to us this way.
50. A line from orbit to ear.
51. Employers.
53. He loved the boys.
54. Of the mind.
55. He found my muscles hard contracted, as were father's.

Down

1. We're proud of this department.
2. Egg-shaped.
3. Despatched.
4. Literary gossip.
5. Dental students use it (abbreviated).
7. Taken from the front (abbreviated).
8. Beak, nose or point.
9. Here we could have many wives.
10. A chivalrous weapon.
11. Not an acid.
13. An " universal " tool.
17. The state of an evil liver.
20. Edge.
21. Motor.
22. I hear his " knightly " squawks.
25. A former enemy.
27. Irritable.
29. Commands the troops (abbreviated).
29a. To regret.
32. Beneath your cheek.
34. Hail !
35. A humble member of the Senior Service.
36. What do I see upon the fairest scutcheon in Bermondsey ? Why, a Saxon rabbit rampant on drops d'or.
38. Tubby.
41. A first-nighter.
43. The end of a maiden's prayer.
45. Colour-wash.
46. Snaky fish (plural).
48. 'Tis better thus, than by force.
50. As 20 down.
52. The Motherland of our obtruding tongue (abbreviated).
53. The home of the Eagles (abbreviated).

PRIMAX.

Hospital Information, etc.

Medical School Notice

COMBINED HOSPITAL UNIVERSITY ENTRANCE SCHOLARSHIP EXAMINATION

THE Medical Schools of Guy's and St. Thomas's Hospitals and the Medical College of St. Bartholomew's Hospital have recently had under consideration the methods of award of University Entrance Scholarships, and are unanimously of opinion that, in the interests of medicine, scientific merit and attainments should be the determining factors. They have therefore agreed that their University Entrance Scholarships shall be awarded as a result of open competitive examination, and they have arranged to hold a common examination for the purpose. Each School offers annually a Scholarship of £100 and an Exhibition of £60, and the Scholarships and Exhibitions will be awarded by the Deans of the three Schools sitting in conference, after receiving reports from the examiners. The scheme will come into operation in July, 1932, when the examination will be held at St. Thomas's Hospital Medical School. Thereafter, the examination will be held at each of the Schools in rotation.

Candidates will, of course, be entitled to express their preference for any particular School, and the stated preference will be taken into consideration when the Scholarships are awarded. The Scholarships will be open to students who have completed their examinations in anatomy and physiology in a British school or university outside the London Metropolitan area.

Notice

THE Association has decided to offer prizes for essays by senior students and newly qualified practitioners on "How is the condition of the teeth of patients of special importance in the work of medical practitioners?" For this competition the medical schools throughout the Empire have been grouped as on previous occasions, namely :—

GROUP 1.—Guy's Hospital; London Hospital; St. Bartholomew's; St. Thomas's Hospital.

GROUP 2.—Charing Cross Hospital; King's College Hospital; Middlesex Hospital; Royal Free Hospital (London School of Medicine for Women); St. George's Hospital; St. Mary's Hospital; University College Hospital; Westminster Hospital.

GROUP 3.—University of Birmingham; University of Bristol; University of Durham; University of Leeds; University of Liverpool; Victoria University of Manchester; University of Sheffield; Welsh National School of Medicine.

GROUP 4.—University of Aberdeen; School of Medicine of the Royal Colleges, Edinburgh; University of Edinburgh; Anderson College of Medicine, Glasgow; Queen Margaret College (School of Medicine for Women), Glasgow; St. Mungo's College, Glasgow; University of Glasgow; University of St. Andrew's.

GROUP 5.—Queen's University, Belfast; University of Dublin (Trinity College); National University of Ireland (University College, Cork); University College, Dublin; University College, Galway; Royal College of Surgeons in Ireland (Schools of Surgery).

GROUP 6.—The medical schools of the Empire, other than those of the British Isles.

For each group a prize consisting of a certificate signed by the President of the Association, together with a cheque for £25, will be available. The similar prizes for the current year were won by :—

Group 1.—Guy's Hospital Medical School.

Group 2.—University College Hospital Medical School.

Group 3.—University of Durham.

Group 5.—Queen's University, Belfast.

Group 6.—University of Melbourne.

Essays must be plainly written or typed on foolscap paper (one side only), and must reach the Medical Secretary, B.M.A. House, Tavistock Square, W.C.1, not later than April 15th, 1932. Each essay must be signed by a pseudonym only, and be accompanied by a signed statement that the work has been the *bona fide* work of the competitor, and that he or she comes within the definition of those eligible to enter for the competition—namely, fourth and subsequent year students, and practitioners within one year of

passing a qualifying examination—together with particulars of his or her name, pseudonym, address, medical school, and (if on *Medical Register*) month and year in which an examination qualifying for registration was passed.

Guy's Hospital Ladies' Association

A GARDEN FETE will be held in the grounds of Guy's Hospital on Thursday, June 25th, from 2.30 to 9 p.m. Miss Madeleine Carroll has kindly consented to open the fete. There will be stalls for the sale of garden produce, provisions, miscellaneous goods, plain and fancy work, flowers, cakes and sweets; also a White Elephant stall, smokers' stall, etc. Concerts, dancing in the Nurses' Home, side shows, teas, ices, etc. A band will play in the grounds during the afternoon. Admission—2.30 to 6 p.m., 1*s.*; 6 to 8.30 p.m., 6*d.*

Contributions to the stalls will be welcomed, and should be sent by June 20th to Guy's Hospital, S.E.1, marked "Garden Fete." Gifts of perishable produce or flowers should be sent early on the morning of June 25th with name and address of the donor.

Donations and offers of help should be sent to the secretaries of local branches, or to the Hon. Secretary, G.H.L.A., 10, Devonshire Place, W.1.

Pass List

CAMBRIDGE UNIVERSITY

M.D.

A. Sandison

LONDON UNIVERSITY.

THIRD M.B., B.S. EXAMINATION.

May, 1931.

Honours.

P. V. Reading (*a*, *b*), *University Medal.*
T. F. Todd (*a*).

(*a*) Distinguished in Midwifery.
(*b*) Distinguished in Surgery.

Pass.

A. R. Clarke — W. J. Ferguson
N. S. Plummer

GROUP I only.

D. W. James — R. N. C. Smith
G. A. M. Lintott — B. Southwell
J. E. Morton — S. J. Wheeler

GROUP II only.

S. Lefcovitch — E. R. R. Mellon
J. M. Robertson

SOCIETY OF APOTHECARIES OF LONDON.

FINAL EXAMINATION.

May, 1931.

Surgery, Medicine, Midwifery and Forensic Medicine.

* T. F. Davies

* Now holds the Diploma.

Papers by Guy's Men

M. Hawke. Spontaneous prolapse of umbilical cord during early months of pregnancy. *B.M.J.*, 1931, i, 936.

C. C. Holman. Perforation of gastric ulcer 3½ years after gastro-enterostomy. *B.M.J.*, 1931, i, 978.

R. Jarman. Carbon dioxide and oxygen, and nitrous oxide anæsthesia. *Brit. Dent. J.*, 1931, lii, 529.

E. C. Warner. Tuberculous peritonitis simulating cœliac disease. *B.M.J.*, 1931, i, 977.

Change of Address

Dr. H. Maclachlan, 83, Streatham Vale, S.W.16. *Pollard* 3388.

Award

Dr. Maingard of Mauritius has been awarded the M.B.E. (Civil), for work in that Colony.

Birth

CRAIG.—On March 12th, 1931, at Port Said, Egypt, to Sylvia (née Van der Pant), wife of Norman B. Craig—a daughter.

Marriage

STEVENS—CUNNINGHAM.—On 1st June, 1931, at St. Michael's, Kingstown, Ireland, by Venerable Archdeacon Murphy, Joseph Moloney Cunningham, M.M., F.R.E.S., Nigerian Civil Service, to Kathleen Sylvia, youngest daughter of Mr. and Mrs. G. A. Stevens, Kingstown.

EDS. { P. M. F. B. / P. V. R.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

Volume XLV *27th June* 1931 *Number* 1120

PASSIM

THE story is told of a doctor who employed his spare time in teaching people to fly. A friend, asking him what attraction he found in such a peculiar pastime, received the reply, " I find it a restful contrast to the responsibilities of medicine." No doubt he held too pessimistic an outlook on life, but all the same the spirit of his remark appeals to us. How many of us, we wonder, at the outset of our careers realise clearly what the essence of our job will be? The introduction of panel practice has made it possible to evolve a doctor who can accept no responsibility whatever and yet be an efficient panel doctor. He may regard medicine as a career as an alternative, say, to the drapery business, and once he has obtained the necessary qualification he is not bound, or, indeed, even exhorted, to employ any more intelligence than the most average shop-walker. Indeed, his work may be very similar to a shop-walker's, directing people to the appropriate department, and it is as easy to say, " Go up to hospital," as it is to say, " Second floor for gentlemen's haberdashery." But that is not the fault of the panel doctor; it is the fault of the panel system. Nor would we suggest that every panel doctor, or, indeed, that the majority are on what we, with the strong opinion we hold of the nobility and respectability of our calling, should regard as such a low footing.

All that we suggest is that it is possible under present circumstances for such doctors to exist and, moreover, to discharge their duties at any rate to the satisfaction of those who employ them. But with this exception we know of no one who enters the medical profession who can discharge his duties efficiently and honestly without being willing to accept a much greater degree of responsibility than if he had entered any other walk of life. There are doctors we have met, apart from some panel doctors, who do not appear to have realised their responsibilities, but they are few, and it is much more common to meet those who over-estimate their responsibilities, and that is undoubtedly a far more disastrous mistake to make.

More tragedies occur, for example, in hospital because, say, an Out-patient Officer sends out a doubtful case instead of calling down the Take-In House Physician or House Surgeon and thus shifting the responsibility to its proper quarter than from any other cause. On the other hand, we have all met the man, even in this Hospital, who shirks his responsibility, who will never make a diagnosis, who will never sign an Infirmary Slip unless he can help it, and who has become adept at " swinging " his cases on his colleagues. But whether one under-estimates or over-estimates one's responsibility, there are comparatively few doctors who do not realise that it is their duty to accept some degree of responsibility towards every patient they meet—a responsibility which may vary from the greatest of all issues, the patient's life, to so comparatively trivial a concern as the patient's comfort. Most doctors, we believe, realise this; indeed, to some it is the attraction which draws them to medicine, but how few laymen have any conception of the tremendous responsibility they are asking their doctor to undertake when they consult him.

Take the attitude of the laity in regard to childbirth. If all goes well, no matter what difficulties the obstetrician may have encountered and overcome, relieved that it is all over at last and rejoicing at the birth of an heir, the family are very apt to dismiss the doctor with a friendly nod, and possibly to resent the amount of his fee when he sends in his account. But if anything goes wrong, who can be to blame except the doctor, and he surely almost criminally to blame, for is not childbirth a perfectly natural function and therefore beset with dangers which can only be created by the bungling and mismanagement of the case

by the doctor? Or take the attitude of the law towards the medical witness. Should he acquit himself well in the box, and should he be lucky enough to avert any misunderstanding in his cross-examination, his evidence is accepted without comment by the stolid juryman; but should he confess ignorance on some abstruse medico-legal point, or admit, at any point, that he may have been guilty of misjudgment, he will be regarded not as merely human, but as a fool, and his evidence will be discounted and his reputation will suffer.

We might elaborate our point by unlimited examples of a similar nature, but they would all go to show the lack of appreciation of the average patient for the degree of responsibility which his doctor accepts towards him when he undertakes his case. Might we not come to a better understanding with our patients if, on the one hand, we realised at the outset of each case the responsibilities which it is our duty not to shirk, and they, on the other hand, realised that the acceptance and conscientious fulfilment of such responsibilities were abstracts deserving of some gratitude and appreciation?

WE should like to congratulate Dr. L. J. Witts on his recent election as Fellow of the Royal College of Physicians and also on his appointment as Goulstonian Lecturer for 1932.

WE would like to draw our readers' attention to the centenary meeting of the British Association. This Centenary is to be celebrated next September, and it is planned to offer opportunities to enable members to see, within the necessarily short time, such things as most interest them amongst the educational centres in London.

The organisers of the meeting are making every effort to enable visitors to crowd in as much as possible, and they are willing to arrange, as far as is possible, to suit each individual's taste.

Guy's Hospital is represented by Professor Gibson, who is in the Chemistry section, and we ask all those at Guy's to become members, more especially the younger men, for whom there are special terms of membership and specially reduced rates. We publish in another place a brief summary of the programme which it is hoped to carry out in September, and we would advise all those who are interested to apply at the Medical School for fuller particulars.

The Surgical Treatment of Cholecystitis

Abstract of an Address given before the West London Medical Society by R. P. Rowlands, Esq., M.S.

INDICATIONS FOR OPERATION

1. Obstruction of the cystic duct, as indicated by attacks of biliary colic with tenderness and rigidity in the right hypochondrium, and often a palpable gall-bladder during and after the attack.

2. Irritation and infection of the gall-bladder as indicated by chronic flatulent dyspepsia, pain and tenderness over the gall-bladder and referred to the lower angle of the right scapula. Cholecystographic evidence of defective filling and emptying, or of stones in the gall-bladder, is of great and increasing assistance. Remembering that about 10 per cent. of the population have gall-stones, it is evident that the mere demonstration of gall-stones is not always a sufficient indication for operation, but when symptoms of cholecystitis or of gall-stones persist in spite of medical treatment, it is wise to recommend early operation in order to prevent worse trouble to come.

Some of the serious consequences of delay may be mentioned:—

1. Gangrene, suppuration and perforation of the gall-bladder with local or even diffuse peritonitis, pylephlebitis, septicæmia and arthritis.

2. Extension of the disease to the common bile-duct with jaundice, cholangitis, risk of hæmorrhage and cholæmia.

3. Extension to the pancreas, causing either acute hæmorrhagic or chronic pancreatitis, with or without jaundice.

4. Intestinal obstruction by gall-stones ulcerating through into the duodenum or colon.

5. Adenoma, papilloma and cancer of the gall-bladder may result from chronic irritation of the gall-bladder.

6. Cardiac degeneration from chronic septic absorption. The damaged heart is often restored by the removal of a septic gall-bladder.

7. Cerebral degeneration from the same causes may induce mental confusion, depression and even insanity, which are sometimes overcome by removing the septic source of toxæmia. I have had several instructive cases of this kind.

Here, watching and waiting until complications develop inevitably adds to the mortality of the delayed operations.

OPERATION

Incision.—I find that Kocher's incision, which divides the whole width of the rectus muscle and its sheath one inch below the right costal margin, gives by far the best access for cholecystectomy, especially in fat and muscular patients. It makes a difficult operation much easier and safer, because of the splendid exposure it provides for what often proves to be a difficult and dangerous dissection in the portal fissure. It is very easy to close, and is rarely followed by ventral hernia, although it allows free drainage at its outer angle. It does not rob the rectus of an adequate nerve supply.

The abdomen having been opened, the surgeon rapidly but carefully explores the abdomen, so that he may discover and remove the appendix, which is frequently affected at the same time. The gall-bladder and bile-ducts are examined with the greatest care, so that no stone or disease can be overlooked. Stones may rest in the common bile-duct for years without causing jaundice. When the common bile-duct is dilated, it must be carefully palpated from end to end, and often it is necessary to open it and to pass a large probe through into the duodenum in order to be quite certain that no stone is overlooked.

It is easy enough to recognise gross disease of the gall-bladder, but slight yet important abnormalities can be easily overlooked. It is well to look for the following indications of disease of the gall-bladder; thickening, with change of colour to pink or grey, small stones often difficult to feel even after the bile has been squeezed out of the gall-bladder; it is especially difficult to feel very small stones in the convoluted cystic duct, which is only one-tenth of an inch in diameter; white spots indicating cholesterosis or strawberry gall-bladder, an excess of fat in the wall of the gall-bladder; enlargement of the sentinel lymphatic gland near the cystic duct is especially important, and often the glands upon the common bile-duct are also enlarged; evidence of hepatitis and of perihepatitis and especially of subcapsular fibrosis near the gall-bladder and adhesions between the gall-bladder and the duodenum, colon or omentum.

I am specially interested in kinks, bands, adhesions and deformities at the neck of the gall-bladder which may be concealed by their peritoneal coverings. The junction of the gall and cystic duct often gets kinked, making a valve similar to the one so often causing hydronephrosis. A long, pedunculated gall-bladder is apt to twist and to obstruct its neck, causing colic, inflammation or even gangrene of the gall-bladder. A. M. Shipley collected 22 cases of acute torsion of the gall-bladder. I have seen several cases myself.

Adenoma of the gall-bladder is a fairly common result of chronic inflammation. It is generally seen at the fundus, but I have seen it at other parts—in one case at the neck and resembling a miniature obstructive enlarged prostate. In another a polypoid adenoma caused intermittent obstruction of the orifice of the cystic duct. Cancer of the gall-bladder is estimated to complicate over 5 per cent. of all cases of gall-stones. The danger of this is greater than that of an operation for gall-stones.

Choice of operation when the parts are exposed.—When the disease is limited to the gall-bladder and cystic duct the choice lies between cholecystectomy and cholecystostomy. It is the ideal of the surgeon to operate while the disease is limited to the gall-bladder and cystic duct, so that he can eradicate it. Fortunately, the gall-bladder is not indispensable, although it has been shown to have several interesting functions. Certain animals, such as the horse, the deer and the rat, have no gall-bladder, and thousands of human beings who have had it removed get on well without it. Skilful removal in suitable cases carries little risk; therefore we need not hesitate to remove it when this is necessary. Removal is far better than drainage, for the following reasons:—

1. Drainage rarely cures cholecystitis, because the infection lurks deeply in the walls of the gall-bladder.

2. A diseased gall-bladder being the chief factory of gall-stones is better removed to prevent recurrence.

3. It is extremely difficult to make sure of removing all the stones from the cystic duct and the gall-bladder. It is often easier, cleaner, and therefore safer, to remove the gall-bladder and cystic duct without opening them.

4. Excision of the gall-bladder may get rid of an unsuspected early cancer or precancerous condition. The results of such operations are extremely favourable. I have several patients living and well many years afterwards, but it is usually too late to cure a cancer of the gall-bladder which has been recognised before the abdomen has been opened.

The chief indications for cholecystectomy are irreparable wounds and injuries or diseases limited to the gall-bladder and its duct. The most important of these diseases are: Acute, chronic and recurrent cholecystitis, especially when associated with gall-stones; typhoid infection, making a patient a typhoid carrier; gangrene, perforation, empyema, hydrops or mucous fistula of the gall-bladder due to obstruction of the cystic duct by stone, torsion, kink, band or stricture; fibroma, adenoma, papilloma or carcinoma and biliary fistula or chronic jaundice due to kinking of the common bile-duct following cholecystostomy.

If every gall-bladder is carefully examined after removal, I believe that more new growths will be discovered. The figures illustrate some adenomata which I have removed; several contained small black stones. I think they have an important bearing upon stone and cancer formation.

It is not wise to undertake cholecystectomy when the patient is very ill, old or feeble, or when the mechanical difficulties and dangers of the operation are too great. Cholecystostomy is safer under such circumstances, care being taken to remove all the stones, if possible. If the symptoms recur, secondary cholecystectomy can be performed under more favourable circumstances. Neither should cholecystectomy be attempted when there is chronic jaundice with consequent risk of hæmorrhage, unless the normal coagulation time has been restored by treatment, nor when there is infective cholangitis or hepatic insufficiency. Cholecystectomy should never be performed unless it is certain that the common bile-duct is patent.

RESULTS OF OPERATIONS

The results of operations upon the gall-bladder performed by good and specially trained surgeons are very satisfactory, and compare favourably with those obtained in any other branch of surgery.

Mortality.—The mortality of cholecystectomy is under 2 per cent.; that of cholecystostomy may be considerably higher, even up to 20 per cent., because it is now generally reserved for bad and late cases.

It is interesting that the mortality is higher in private than in hospital patients, chiefly because the former wait too long and try a variety of medical conservative cures before they come to operation. Hospital patients cannot afford to wait. For similar reasons, the mortality in men is higher than in women.

Ultimate results.—Cholecystostomy affords complete and permanent relief of symptoms in only about 45 per cent. of cases. The persistence or recurrence of symptoms are often due to leaving some stones behind, to the persistence of inflammation in the walls of the gall-bladder, or to the formation of new stones. Secondary cholecystectomy or choledochostomy are often required.

Cholecystectomy affords complete and permanent relief in about 86 per cent. of cases. Muller found the results completely satisfactory in 84 per cent. of stone cases and 70 per cent. of the cases of cholecystitis without stones. Whipple gives similar figures. At least 80 per cent. of my results were good. The more accurate the diagnosis, the better the result. Hurst has pointed out that some temporary recurrence of symptoms may follow cholecystectomy, owing perhaps to spasm of the sphincter of Oddi with dilatation and other changes in the bile-ducts, secondary to the loss of the gall-bladder. Under these conditions spasmodic pains may develop and be attributed to stones left behind in the common bile-duct. Medical treatment will generally cure these symptoms and should be well tried before submitting the patient to another operation which may not discover any stone or obstruction in the bile-ducts. Persistence of symptoms after operation may be due to residual infection in liver or pancreas, to stones overlooked in the ducts, to errors in diagnosis, to osteo-arthritis of the spine, spastic or mucous colitis.

The following interesting case may serve to illustrate this address :—

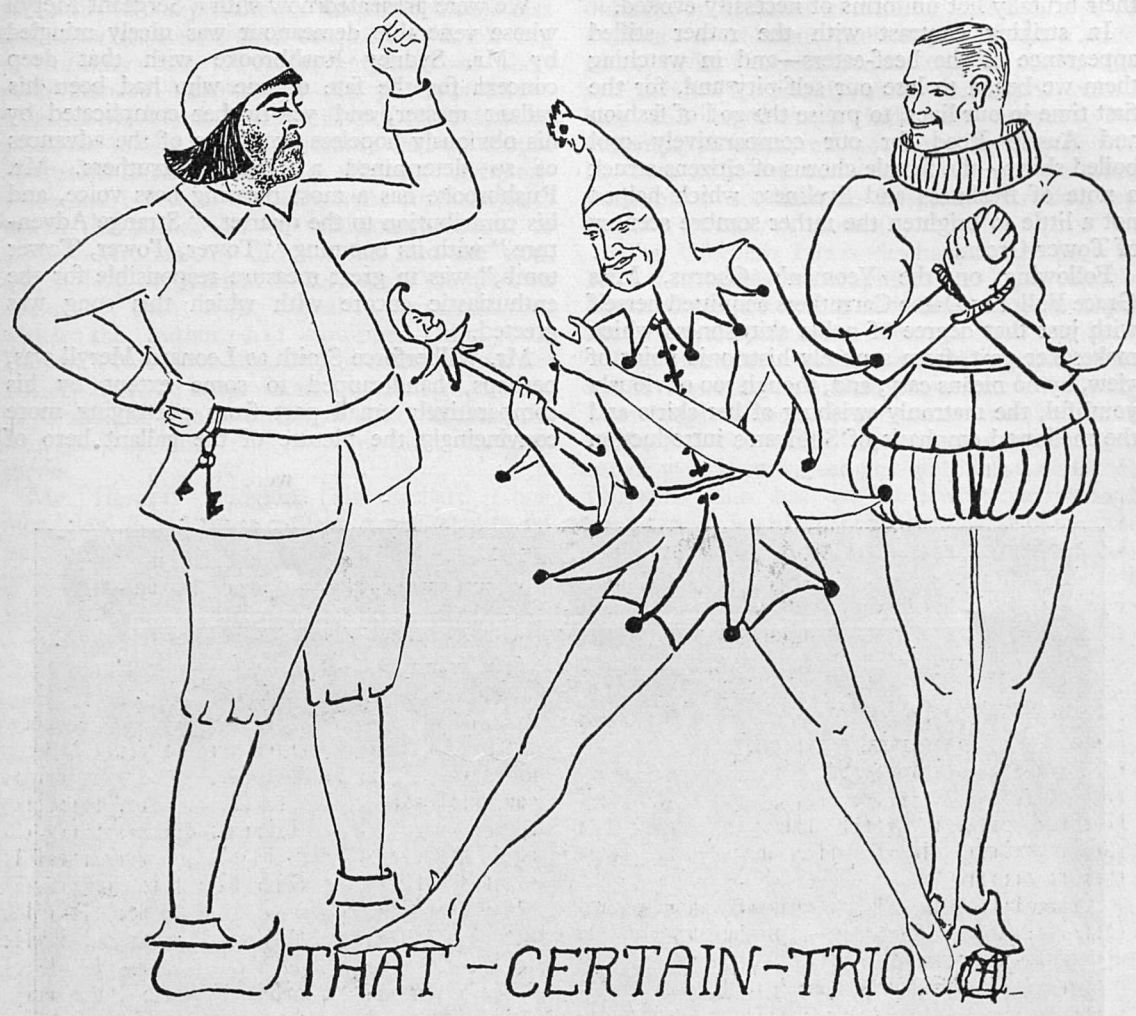
Chronic Cholecystitis; Cholecostomy; Recurrence; Cholecystectomy.

Mrs. G. S., aged 55, gave a history of bilious attacks ever since she was 12 years old, her sister had similar attacks. It is more than probable that these attacks were due to inflammation of the gall-bladder, although they began in childhood. For years the attacks were thought to be due to neurosis or to indiscretions in diet, but at last jaundice developed and gall-stones were diagnosed. Cholecystostomy was performed by another surgeon and 232 stones were extracted from the gall-bladder through a vertical incision extending vertically downwards from one inch below the tip of the ninth rib.

Some 15 years later all the symptoms recurred, and in November, 1927, I made a Kocher's incision just above the old scar in order to avoid adhesions as far as possible. The gall-bladder was found adherent to the old scar, and embedded in adhesions. It was inflamed and contained one stone, the size of a partridge's egg, which was not facetted. No stones could be felt in the common bile or cystic duct. The gall-bladder and cystic duct were removed entire. On opening the gall-bladder its mucous membrane was found to be deeply congested, and a quarter inch from the origin of the cystic duct there was a cystic swelling, projecting into the lumen of the gall-bladder and capable of acting as a stopper to the cystic duct. It had a small opening on the surface. On incising the swelling it was found to be cystic, and it contained three small, hard, granular, black stones, the size of grains of rice. I thought the cystic swelling, or adenoma, was the factory of these gall-stones, which, from time to time, got discharged into the gall-bladder and became impacted in the cystic or common bile duct, causing colic, or, on the other hand, remaining in the gall-bladder and developing into larger stones.

Guy's Hospital Musical and Operatic Society

"THE YEOMEN OF THE GUARD"



MR. HERBERT TEMPLEMAN is to be congratulated once again on laying the foundations of success by providing the basis of all good amateur operatics—a finished but unobstrusive orchestra.

As we listened to the first strains of Sullivan's Overture we could but be grateful to an orchestra which at the outset put our minds at rest that we had come not to eulogise the enthusiastic strains of an amateur operatic society whose painful duty it is to resurrect one of Gilbert and Sullivan's hardy and too often abused plays, but that we were challenged to criticise frankly the rendering of a musical exercise not infrequently approached by many such societies with considerable diffidence and with an apologetic appeal to the indulgence of its too-frequently compulsory audience.

The curtain rises with Phoebe at her spinning wheel, and a very winsome Phoebe was portrayed by Miss Brigid Buchanan, the liveliness of whose singing and acting did more than a little to develop that atmosphere of mischievous jollity without which the tragic theme of Gilbert's story might gain too uncomfortable a footing.

The Chorus of Yeomen, so excellently drilled in the carriage of their unwieldy pikes, very definitely—

" Brave in bearing,
Foemen scaring " ;

yet inevitably demonstrated the discomfort which their brutally hot uniforms of necessity evoked.

In striking contrast with the rather stifled appearance of the beef-eaters—and in watching them we began to lose our self-pity and, for the first time in our lives, to praise the god of fashion and Austin Reed for our comparatively cool boiled shirts—the female chorus of citizens struck a note of freshness and liveliness which helped not a little to brighten the rather sombre scenery of Tower Green.

Following on the Yeomen's Chorus, Miss Grace Fuller as Dame Carruthers acquitted herself with just that degree of noble skittishness which makes her part, from a purely histrionic point of view, by no means easy, and, though too obviously youthful, the matronly swishing of her skirts and the mellowed emphasis of Sullivan's introduction of her to her audience with those famous lines :—

" The screw may twist and the rack may turn,"

were rendered with a quiet air of dignity which brought the accomplishment of her part into line with the high standard at which the whole opera was maintained.

We were presented now with a Sergeant Meryll whose venerable demeanour was nicely mingled by Mr. Sydney Rushbrooke with that deep concern for the fate of one who had been his gallant master, and yet further complicated by his obviously hopeless avoidance of the advances of so determined a Dame Carruthers. Mr. Rushbrooke has a most pleasing bass voice, and his contribution to the quartet, " Strange Adventure," with its booming " Tower, Tower, Tower tomb," was in great measure responsible for the enthusiastic encore with which this song was greeted.

Mr. Wilberforce Smith as Leonard Meryll was, perhaps, handicapped to some extent by his comparatively small part from portraying more convincingly the picture of the gallant hero of

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The Whole Company—End of Act I.

recent battles and the worthy recruit of a noble corps of Yeomen.

We have always been of the opinion that Gilbert was somewhat cynically unkind to his heroes, and we have therefore extended to those actors who were unfortunate enough to possess a pleasing tenor voice and a wistful expression our heartfelt sympathy to compensate for the unfavourable bias which we realise we shall be guilty of employing in forming our too-hasty judgment of their performance. Fortified by our previous knowledge of Mr. Hankey's rendering of these difficult parts, we rejoiced in the assurance that we should be treated to an exposition at all events commonsense and bereft of those æsthetic characteristics which the author has so maliciously sought to foster. Mr. Hankey did not fall into the trap, and rightly determined to rely more on his own personality than on the appeal to sentiment with which the author had equipped him. Mr. Hankey's voice is always easy to listen to, and the Society are to be congratulated on their good sense in persuading him to return to their aid from the stronghold of the rival hospital which he now serves.

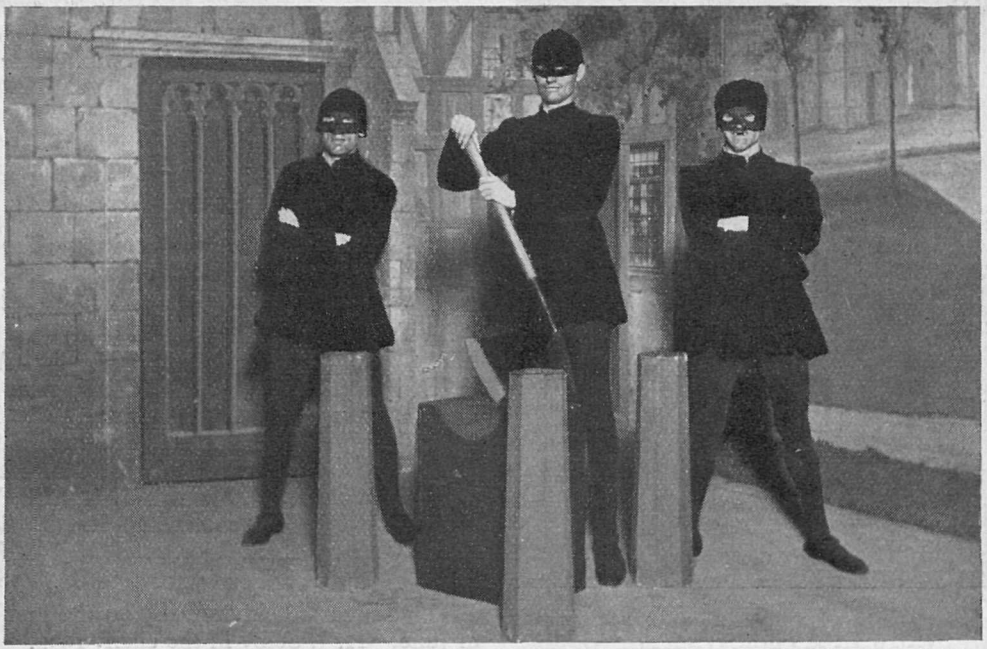
Mr. Herbert Hodgkin (Sir Richard Cholmondeley) is, we must confess, a new star to us, but he is a star which we have no hesitation in predicting will shine out steadfastly in however distinguished a firmament. His bearing was the essence of tolerant lieutenancy, his commands the incarnation of Towerly discipline, and his " laughter aside " a feature of the evening.

Wilfrid Shadbolt, the Head Jailer, is one of those monsters to whom Gilbert in one of his less tastefully impish moods has cankerously given birth. Mainly gross, the Assistant Tormentor indulges on occasion in a heavy, childlike type of humour—a nauseous prostitution of the Comic Muse. Mr. Norman Barber so aptly played this role that we can hardly, at the same time, praise him and compliment him. So uncouth, so unkempt, so unshaven, so fiendishly playful was he that, while we admired his acting, we were thankful to see him in hospital next day, no longer a travesty of himself.

Miss Gwyneth Lewis discharged her part as Kate with an easy accomplishment. Her voice is first-rate and we should have liked to have heard her in a more important role.

Elsie Maynard is a most exacting part, and one which demands an unfaltering voice. We wish Miss Megan Thomas every success in the nursing profession, for unless she has an outstanding career we are convinced she will have missed her vocation. She has an obviously well-trained voice, and it is sad to think that it may only occasionally be used to charm a musical audience.

And, like the child at the tea-party, we have left the cake till the last. Mr. Joseph Chamber-



The Central Photographic Co.

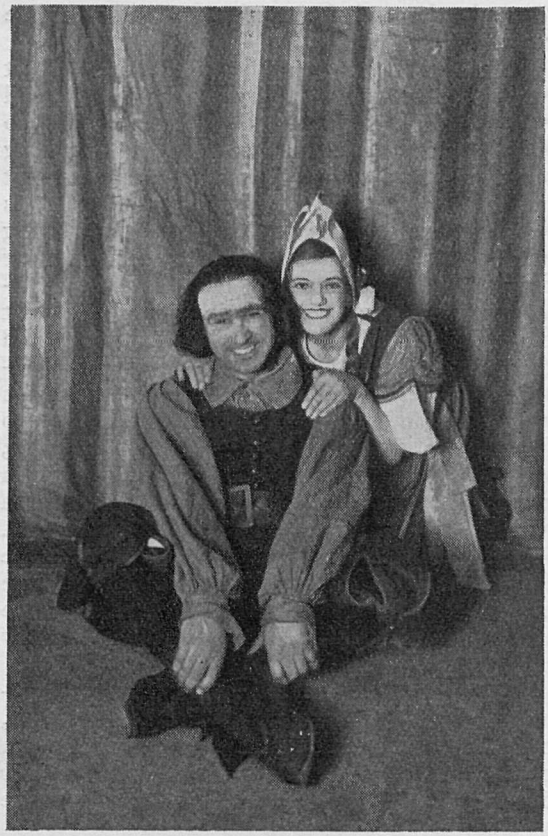
Headsman—G. G. Ellis. Assistants—R. Wheatley and W. S. Pitt-Payne

lain's performance—and we do not fear an accusation of making invidious distinctions—stood out clear against a brilliant background. Mr. Chamberlain has for some years now taken an important part in these Gilbert and Sullivan operas, but in our opinion he surpassed himself this year. As a jester he displayed a most delicately light touch, his singing was excellent, his "moping" most gloriously "mum." He immediately gained the enthusiastic applause of his audience, and never once defiled his artistry by over-acting. He very truly earned the spontaneous and repeated demands for encores.

Finally, Mr. Leffler is to be heartily congratulated on the wonderful team-work which he had evolved, and the excellence of his stage effects, and the secretaries are to be complimented on the efficiency with which they had obviously discharged their most arduous tasks.

The Central Photographic Co.

Jack Point and Elsie Maynard
Joseph Chamberlain and Nurse Megan Thomas



The Central Photographic Co.

Phoebe and Wilfred Shadbolt
Miss Bridgid Buchanan and N. L. Barber.

The Innominate Club, 1921

THE Annual Dinner was held at the Trocadero Restaurant on Friday, June 5th last, H. G. Wimbush in the chair. A most enjoyable evening.

The following attended: N. A. Arnold, H. E. Blake, H. N. Collier, C. K. Colwill, N. Eckhoff (guest), P. M. F. Bishop, R. Evans, G. R. Ford, A. T. Fripp, G. F. Gibberd, W. C. Hancock (Doc.), G. T. Hankey, B. E. Hawkins, G. S. Landon, A. R. Marsh, W. A. Mill, W. M. Ramsden, B. G. Scholefield, E. C. Seward, E. C. Warner, C. L. Worthington, J. S. Woodhouse.

The dinner is held annually on the first Friday in June. H. J. Selby in the chair, 1932.

G. T. H.

The Art of the Denture

A Paper read before the Guy's Hospital Dental Society, March, 1931, by Mr. D. S. Clogg, L.D.S.

MR. PRESIDENT and GENTLEMEN,—When our secretary asked me to read a paper before the Dental Society he asked me to choose a practical subject with a prosthetic flavour. I remembered that I had a ready-made thesis on the operations for the extraction of teeth waiting in my drawer, a thesis to which I had been able to give a good deal of time and book-work for the Newland-Pedley competition in 1929. Now that one's time is more occupied with the cares and trials of private practice, it is not so easy to find time for reading all the current topics of prosthetic dentistry, and I therefore choose to speak of some of the methods used in private practice that have transformed work that was at one time made tedious by many appointments for easing dentures, and not infrequent re-makes into denture service that goes right through from start to finish with ease and satisfaction.

Some of you will say that some steps in these methods that I am about to describe are a waste of time or extravagant, but I believe that even if one is going to get a small fee for a denture, it is all the more necessary to ensure that the work goes ahead without a set-back from the start, and that when the finished cases are put in and one time allowed for adjusting, that that patient is absolutely finished and satisfied.

It is with that end in view that the first appointment is made to take impressions in composition, and at the same time to visualise all the points of the finished article.

It is advisable to have some form of chart upon which to fill in the data of the particular case. The first point to consider is the periphery and the base upon which the dentures are to be stabilised. We examine and note (*a*) the mucous membrane, whether it is flabby or hard and tense; (*b*) the arches and vault of the palate and their relation to each other; (*c*) the alveolus or ridges, whether they are sharp or wide or poorly pronounced; (*d*) the tuberosities and undercuts, whether they will be helpful or not; (*e*) any hard or prominent areas in the upper or the lower which must be relieved or avoided.

The periphery of the base-plate must not impinge upon muscle attachments, the frænum, and the muscular and glandular tissue in the lower —as if the denture is well retained it will cut into these structures, and if not well retained, these will be the cause of much instability.

The main point to bear in mind for the retention of the lower denture is that a lower denture, particularly a full case, remains in position by virtue of its not occupying the space occupied by anything else that is movable. That is to say, look to the tongue, the lips and the folds of the cheek and also the little muscle attachments all round the periphery. A denture that is extended on to a moveable or contractile tissue will not be so stable as if it were shorter by the same amount.

So much for the base-plates and the periphery. Now think of the teeth you are going to use and where you are going to put them. I am going to deal with the selection of teeth in a later paragraph; however, there is the necessity for deciding at an early time the possibility of the anterior teeth being on the gum. Both in the upper and in the lower I avoid whenever possible putting the teeth on the gum. To my mind they never look natural; there is often a space between the base of the tooth and the mucous membrane which is dreadful, and there is always a loss of stability—that is, for full cases. In a single tooth on partial dentures that does not apply.

There are, however, those annoying cases where the alveolus is very prominent and any thickness of material over it bulges the lip considerably. In my own practice I have been making sure that this does not occur by removing quantities of the external plate of the alveolar bone at the time of the extraction, or, in other words, preparing the gums for dentures surgically. I must not do more than mention this now, but will be pleased to answer questions about it at the end.

I have a model to show of a case that I treated recently in this way. The patient had very many roots and much caries and prominent upper incisors, and showed a lot of gum. As you know, the alveolus does not undergo as much resorption when the teeth are extracted for caries as when there has been periodontal infection present.

This was sure to be a case for the six incisors on the gum, and as I was seeing the case from the start I decided to avoid this. Under local anæsthetic at the time of extraction I removed all the outer alveolar plate of bone surgically, smoothed all the rough edges of bone and sutured the mucous membrane to close the wound entirely. Healing was very rapid, and now I have a beautiful anterior ridge upon which to construct my denture with no fear of over-filling the lip contour.

With a clear conception in one's mind of the points just enumerated, the accurate impression now claims one's attention. For edentulous cases I cannot stress too strongly the advantages of

plaster, but one should always use the anti-expansion solution and have the proportions of plaster to solution accurate.

The solution is easily made up as follows : To 100 parts of water add 4 parts of potassium sulphate, 0.4 parts borax, and as a colouring agent alizarin sulphonate .04 parts. In using this plaster solution it is necessary that the plaster shall be thoroughly aged and free from lumps. This is done by leaving the impression plaster out in the air for two or three days before using. The plaster before use is sieved and weighed up in paper bags in 50-gram quantities. This is put to 30 c.c. of the solution for use. For the mixing of the plaster one does as seems to suit best. We find that to put all the plaster straight into the solution, allow it to soak for half a minute, then mix and use quickly, gives the best results.

It is very much more satisfactory to use a well-fitting tray than one which is not adapted to the mouth. A special tray is usually preferred. The tray is very important. It must not be too bulky, but must just extend to where the periphery of the future denture is to come. A tray that is too deep in the periphery gives a poor impression, as it distorts the soft tissues at the sides and front, which must always be allowed freedom. The lips and cheeks must be pulled down and out, so that the absolute limit of the periphery of the denture is shown clearly on the plaster. For the upper it is always advisable to place a narrow strip of wax along the distal margin of the tray. This prevents excess plaster passing out at the back and on to the soft palate, and at the same time produces a little compression of the soft tissues along the distal border of the denture.

When taking the lower impression, it is even more important to make your impression show the extent of the periphery of the denture. The patient is asked to lift the tongue up when putting in the tray and plaster, and then when it is in position to stick the tongue out. This allows the impression material to pass between the tongue and the lingual aspect of the alveolus in the molar region, and at the same time lifts the frænum of the tongue and the accompanying soft moveable structures so that the lingual periphery is decided in the impression. Again it is important to pull on the lips and cheeks, to what one might call " muscle trim " the labial periphery.

I want to deal now more fully with the question of the best impression to take for partial dentures. May I say, once and for all, that composition is not consistently accurate to work to. I know that not so long ago in the practice in which I am working we accepted a good Kerr impression as satisfactory to work upon, but there were recurrences of a little gold plate not fitting too well or a lower denture needing a lot of easing to get it in at all and a lot of time wasted in adjusting bands, and you all know the many little things which are just wrong with a denture that prevent one being able to put it in with a click and there to leave it. To many of us partial denture work has been and still is an inconvenient nuisance, and, as you know, the most difficult cases are those where a few teeth are standing which do more to upset retention than to assist stability.

Until a year ago I was using plaster for everything, and, in particular, taking all my partial case-impressions with plaster in either box trays or special trays as indicated, but results were not too good. Many of the impressions were troublesome to take, the plaster breaking up into many pieces which took the mechanic a long time to fit together, and so ofter a small piece on the occlusal surface of a tooth was missing and inaccuracy resulted.

Plaster has its advantages for the partial case in that it is cheap, easily prepared for use, and in many cases gives an excellent impression. Its chief advantage in hospital practice is, of course, the training in manual dexterity. One needs and acquires a fairly light touch and sense of observation of details to put a badly-broken plaster impression together quickly and satisfactorily.

Plaster has its disadvantages in those wet mouths where the pieces get all mixed up in soliva. it is fairly unpleasant for the patient, particularly where the tray has not been greased and will not come out easily on account of undercuts. Solitary teeth are often put to much rough handling when firmly encased in plaster gripped in a tray, and much heaving has to be done via the handle.

In my own private practice now I make a rule of taking every impression for a partial denture, however many or few teeth are standing, with Dentocoll. Dentocoll is a material which is unsuited to extensive use at hospital on account of its expense. True, it can be used again satisfactorily, but it soon diminishes in quantity and quality on re-use. There has been a good deal of doubt as to the accuracy and successful use of this material here, largely, I think, because we are discouraged by the financial authorities, and largely because of the accurate technique and working required to produce an excellent model.

May it be enough if I say that in private practice we never take any finishing impression for a partial case with anything but Dentocoll. In private practice, *time* is more valuable than an odd shilling spent on material. We use Dentocoll for the very good reason that we construct dentures, upper or lower, that we know will go in at

the time of finishing, and, what is more, the bands will not have to be adjusted, and it is the exception that any case fails or has to be eased more than once, and many do not get touched after they are put in. Now, gentlemen, that is denture work of which one can be proud; mind you, we are working with our own very experienced mechanic in our own work-room, and something must be said for that, but whereas the mechanic has been the same for years, the improvement has only come from the Dentocoll models.

Dentocoll for impressions where teeth are standing will be appreciated by operator and mechanic, to say nothing of the patient.

May I run through the Dentocoll technique so that some point may arise on which you can improve some difficulty?

Firstly, let me say Dentocoll is not easy to use, particularly in the winter; one must not mind having two or more attempts to get the material to the right consistency, but a little practice soon puts one at one's ease.

Dentocoll is an elastic hydro-colloidal impression material depending largely on the correct proportion of water in it to fulfil its working properties. Dentocoll must never be allowed to get dry.

The preparation of the material is as follows: Place a stick of material in the syringe barrel and completely immerse the barrel in boiling water. The electric steriliser makes a convenient heater. This must boil for at least five minutes, but can be left longer. This should be put in to boil before finishing the previous patient, so that time is not wasted. It should be thoroughly mixed by working the plunger up and down. Note that the whole barrel of the syringe must be in the boiling water, as it is a poor conductor of thermal changes.

The syringe must now be cooled. It is immersed in *warm* water, not cool or cold, as too cold water renders an uneven consistency resulting in the fractured pieces at gingival margins in the impression. The plunger is worked up and down to mix the material thoroughly. The barrel of the syringe should feel quite hot against the cheek when ready. The material should not run from the tray, but should present a glossy surface.

The tray is warmed slightly over the bunsen and a small quantity of Dentocoll expressed, which must be well worked into the holes all over the tray. Sufficient to fill the tray is expressed and worked over the tray with a vaselined finger. It is easier not to touch the material if it can be put directly in position in the tray from the syringe.

The patient must rinse with cold water before putting the material and tray in the mouth. As in all impressions, put lightly to position, hold it there and free the cheeks and tongue of the excess material. When the tray is stable, continue to hold it and spray the back of the tray with a fine jet of cold water. The wash bottle on the unit makes an easily controllable flow of water. A saliva ejector removes water from the mouth

This cooling must be continued for at least two or three minutes. It is not found that patients mind this syringing at all, particularly if the head is a little forward and the saliva tube efficient.

When chilled, the tray and impression must be gently eased from the mouth; do not pull on the handle, but ease the material out, following the lines of least resistance. The impression is examined and placed in cold water, to be taken and cast almost at once. Models may be cast in R2 solution, but they take twice as long to set as with other impression materials. If R2 is used, the cast should be left in a hygrophor to set so that the Dentocoll does not dry.

The chief points in the technique are these: Do not try to take an impression when the material is either too fluid or abnormally stiff. If the impression is removed carelessly, the tray will come apart from the material and risk a distortion.

A word on trays. The perforated trays supplied are very often satisfactory, but we nearly always make special trays with holes. We like a special tray, as it then carries the material at once to where it is needed and one does not risk being too deep in the periphery.

These trays are made by investing a perforated wax form in sand and plaster all in one piece. The sand and plaster is trimmed up with the handle just projecting. The wax is boiled out and the whole investment dried on a gas-ring or in the oven. It is allowed to cool and then poured in the ordinary way. The holes come out in the finished tray and very little finishing is required, and faulty casts never seem to occur.

THE CHOICE OF TEETH

In hospital practice it is very difficult to achieve anything like a pleasing result from the æsthetic point of view in the dentures we construct. The reasons for these difficulties are these: There is no wide choice of teeth from which to select for individual cases; the patient can give one very little idea of the original form of their own teeth, as we see them for the first time completely edentulous, and so often the shape and contour of the face very much altered through the wearing of inefficient dentures or no dentures at all.

This state of affairs leaves a good deal to the judgment and initiative of the dental surgeon. At the very first visit of the patient I select a colour

and a rough guide as to size, and order from the manufacturers a selection of about six sets. These can then be tried for suitability at the visit for taking bites or the final impressions, and time is not wasted by having to change teeth after setting up. One should always choose teeth with the patient sitting before you, having at the same time the preliminary models as a guide and making use of the entire selection of the stock of the manufacturing company. I consider it inadvisable to buy teeth in large quantities. It is not an economy at all, as one gets sets and broken sets which are not used, and before one's stock is finished new designs may have been brought out.

The points governing the choice of teeth for the individual case are these :—

Let us take colour first.

Colour.—While the colour of the eyes and hair may have a bearing upon the colour of the teeth, the two most important points are *complexion* and *age*.

The complexion varies largely because of the difference in pigmentation and the blood supply.

Where a colourful complexion prevails abounding in red, orange or yellow, the pigments in the teeth will usually harmonise. Where the tawny or pallid complexion is seen, the teeth will show a predominance of grey.

The factor of age does not usually receive the attention that it should. It is a recognised fact that as we grow older so our teeth become darker. So often artificial substitutes are entirely too light in colour; granted, this is very often due to the desire of the patient " for nice white teeth."

It is far better to err on the side of the darker colour than to use one that is too light. The lighter the colour, the more is the reflection of the light rays, whilst the darker colours absorb the rays, so making the artificial teeth less conspicuous.

The porcelain of which the teeth are made varies greatly. I find that the " natural teeth " of S. S. White are the most satisfactory in this colour question, as they have a certain orange pigmentation which gives that appearance of vitality without being a definite colour. They are arranged so that the six front teeth of a set are not all exactly the same colour, the canines having more of the yellow pigmentation than the incisors.

Shape.—The next point to be considered is the shape and size of the tooth to be selected. There have been many methods of selecting tooth shape, but I do not think that any one method fulfils all requirements. The type and shape of the face, the character and temperament of the patient, and the shape and size of the arches and vault of the mouth are all factors which have governed selection.

As long ago as in the eighties of last century, tooth forms and arrangements were carved by Dr. Flagg; these forms and arrangement of teeth were governed by the temperament of the patient. Later, Dr. William Hall brought out moulds in three distinct and characteristic shapes. Dr. Leon Williams in 1910 elaborated Dr. Hall's ideas and produced a classification that we use to-day.

He described typal forms of face, namely, square, tapering and ovoid. These types he applied to the shape of the central incisor as being the most characteristic of all teeth. Here we take the outline of the face as a guide in selecting wide-necked square or the more delicate necked tapering or ovoid teeth. These classifications are well known to the dental companies and to the profession alike.

A further factor is the type of arch; upon the type of arch depends to a certain extent the type of the face, or vice versa. Again, there is the square arch for square teeth, the tapering and the ovoid.

Size.—At the bite block stage in the construction of dentures, more is required of the bite blocks than ascertaining the relation of the mandible to the maxilla.

Firstly, the centre must be marked. This is not always so easy to judge. I take a point in the centre of the line between the eyes and describe from that point an imaginary line at right angles to this line between the eyes and bisecting as nearly as possible the lower half of the face, and mark that on my bite block. Push the wax knife into this line and regard it from a distance. The nose and lips are very erratic sign-posts to the centre of the face. Few things are more distressing than to set up to the incorrect centre.

I must not weary you with too much about high and low lip lines, but these should be marked in on the bite block. The median lip line denotes the junction of the lips at rest. The tips of the upper central incisors should usually be arranged to come 2 millimetres or one-sixteenth of an inch below this lip line.

With a few guiding points in mind there will be no excuse for the selection of long, tombstone-shaped, white teeth for the little round, rosy-faced woman, or, again, for the delicately-pointed pearly-shaped teeth for the square-faced labourer who has probably smoked a pipe most of his life and whom we expect to live up to a row of light " B2's."

I suggest that you always make a point of looking at the arrangement of the teeth of patients and friends who have their own incisors present. It will surprise you to find that those people who at

first sight have regular teeth, that, on comparison to the regular set up, one finds one or more teeth far from regularly placed.

How are we going to arrange that irregularity in our prosthetic restorations so that it makes those artificial teeth live, and not merely grotesque and crooked?

Think for a moment of the development and of the irregularities met with in the orthodontic practice and follow me as I outline several arrangements :—

For the wide arched upper the centrals are prominent, but the incisive edges kept in slightly. The canines, as usual, are out at the neck, see that the distal aspect is really distal and not placed as a sort of accessory incisor. The lateral here is most important, and it is with this tooth that one can make all the difference between a flat unnatural row of teeth and a natural set up. The lateral incisor is nearly always shorter than the central or canine and always in at the neck. Remember it is developed inside the arch with the apex of the root still left inside when the tooth is fully erupted. We remember the palatal pointing of an abscessed lateral incisor.

A wide square face will not, as a rule, have overlapping centrals, but the narrow, high-arched mouth frequently does.

The lower incisors in the mouth are very rarely perfectly regular, and certainly never have the rounded convexity of the usual lower porcelain tooth. One always grinds the incisive edge of the lower incisors, converting the convex edge into a concave one. They are frequently crowded at the necks, and usually irregularities are asymmetrical.

As for the premolars and molars, one should use the articulated teeth such as S. S. White's " natural backs " or anatoform posteriors in order to get that stability in action so desirable. I prefer patterns that are very narrow bucco-lingually, as one so often sees very wide teeth occupying space for the tongue or cheeks.

Of the companies' teeth that I have used I prefer S. S. White's " natural teeth " for colours, pattern and suitability, but " anatoforms " of De Trey are the same price and run the others a close second. They work out at 10*d*. for pin teeth and 5*d*. each for diatorics backs.

I have used " Vita " teeth, but have not been fortunate with the colours. The " Aurora Vitype " teeth of Courtins are very good for the cheaper work; colours and moulds are good, but the backs are rather too large.

I have dealt largely with the selection of teeth, where one sees for the first time the case edentulous. Now frequently in practice one sees the patient before extractions are done, so there should be no excuse for unnatural artificial teeth.

One can take a compo-squash bite of the upper and lower incisors and cast it for reference as this model.

One can, better still, take a composition impression before extractions are done and then save and replace the extracted teeth in the impression before casting, but whether one does this or not it is always advisable to save all anterior teeth extracted and file in little envelopes for future reference as to shape and size. The colour should be taken before the teeth are extracted.

" THE STABILOCCLUSEUR " OF DR. GEORGES VILLAIN

You remember that early last year Dr. Georges Villain, of L'Ecole Dentaire of Paris, gave a lecture at the Royal Society of Medicine on his articulator and the methods of mounting artificial teeth so that stability in mastication is achieved.

At that lecture I was particularly interested in his apparatus and his ideas, as were many who heard his able lecture. This first enthusiasm quickly waned as we returned to the affairs of everyday practice.

In December of 1930 I visited Dr. Villain in Paris, and he was kind enough to meet me and arrange a special demonstration of his " Stabil-occluseur." The demonstration with the assistance of Mr. Roger Kelly, a student in the dental school who spoke English very fluently, and a young lady student who was at that time doing a case on the Stabiloccluseur, gave Mr. Holms and myself a very thorough demonstration of the working and use of Dr. Villain's Stabiloccluseur.

That demonstration and the apparatus I will try and reproduce for you with the aid of the epidiascope and models.

In 1912-13, Dr. Georges Villain declared at the Société d'Odontologie that the problem of articulation of dentures could not be definitely solved by the mechanical reproduction of the mandibular movements, and he sanctioned research work towards finding a physiological method of restoring the maxillary masticating surfaces.

In his study on the human dental mechanism presented in 1914 he delivered his thesis on the research, showing on the one hand the complexity of the problem of dentomaxillary articulation, but establishing on the other the constant relations between the mandibular movements and the articular surfaces.

He pointed out that the problem of the articulation of dentures did not lie in the mechanical reproduction of movements of the mandible, but

in the reconstruction of the dental articular surface generally produced by these movements.

The works of Dr. Villain have definitely shown that this articular surface is on the plane of a sphere. He has compared the articular surfaces of the human dental mechanism to two spherical blocks working within each other, and the concave face of the lower moveable block slides against the convex face of the superior sphere, which is fixed—in other words, the mandible to the maxilla.

The projection of the articular surfaces upon the three planes in space represents the three curves which he names: (1) *The Horizontal curve*, that is, the form of the arch; (2) *the Sagittal curve*, that described by Balkwill in 1866, and known also as the curve of Spee; and (3) *the Frontal curve*, the inclination of the teeth.

These curves are dependent on each other; the shape and width or size of the dental arch determines them and should regulate the inclination of the teeth.

The Stabiloccluseur was designed by Dr. Villain to obtain the practical realisation of articulation and stability of dentures at the same time. It automatically establishes the articular surfaces in order to ensure their static stability, which he calls occlusion, and their dynamic stability, which he calls articulation.

NOTE.—*Occlusion* is the relation of the teeth and arches in repose.

Articulation is the relation of the teeth and arches in action. These are two different things and must be carefully differentiated. It makes the mounting of the teeth along their rational curves automatic without much investigation and tentative procedure. Thanks to the rational curves, the normal contact of the articular surfaces is assured at whatever variation is made in the mandibular movements during mastication.

The Stabiloccluseur dispenses with the necessity for using anatomical either fixed-path or variable articulators, and does away with the long and tedious setting up of full cases to achieve the three-point contact. The setting up becomes easy, the teeth being placed automatically in their position, which assures the stability of the denture and its maximum functional activity; at the same time the dentures thus made are balanced dentures—that is to say, dentures for which the tolerance, the retention and the functional activity are immediately noticed by the wearer.

DESCRIPTION OF APPARATUS

The Stabiloccluseur is composed as follows:—

A.—An ordinary hinge-type occlusor mounted on sliding tubes fitting on to a base or platform. This base has three other adjustable guides supporting the guiding pins destined to fix three points for the lower articular surface.

B.—A spherical block, the true mould allowing for the mounting of the lower teeth following the rational curves of dynamic articulation. This sphere is provided with a means of attachment to the upper fork of the occlusor.

C.—A slide to determine the dynamic axis of the artificial teeth.

D.—A little trusquin to facilitate the mounting of the models on the occlusor and to regulate the height of the guiding pins.

E.—A clamp to fix the models in their correct position on the platform.

F.—A ruler to control the occlusal place at the bite-taking stage.

INSTRUCTIONS FOR SETTING UP DENTURES USING THE STABILOCCLUSEUR

FULL DENTURES

Taking the bite.—The bite blocks are made of composition. The occlusal surface of the upper bite block is established first so that it follows the horizontal plane passing through the future free edge of the lower incisors and parallel to the plane of Camper. The plane of Camper passes through the centre of the external auditory meatus and the inferior border of the nasal septum. This is controlled by using the flat ruler, placing it between the bite blocks and extending 3 or 4 inches from the mouth. A second straight-edge placed on the cheek following the plane of Camper shows whether the two are parallel. The relation of the mandible is taken to this plane and one now has a fixed base to work to, and this is the superior maxilla.

Do not forget to mark on the compo blocks the centre line, the high and low lip line, and, above all, give them the correct contour or external volume necessary to re-establish the æsthetic appearance.

The blocks are fixed together with little metal hooks or wax, being careful not to obliterate the line of occlusion.

In the laboratory the models are now mounted on the platform and on the forks of the occlusor.

The models and blocks being waxed together, the clamp is warmed and fixed into the compo of one of the bite blocks. The arm of this is set so that it can be held in the screw in the front of the platform. The occlusal plane is levelled and the screws tightened. Plaster is run in under the models to fix the lower to the apparatus. The Trusquin verifies this parallelism.

The upper model is fixed with plaster to the upper fork.

The models are now mounted on the occlusor with the horizontal line of occlusion, which was made parallel to the fixed line of Camper on the

face, parallel to the horizontal platform of the apparatus. The lock nut at the back is adjusted and tightened as on the plane line articulator.

Mounting the sphere.—The bite blocks are removed. The crests of the alveolar ridges are marked on the upper and lower models, extending the lines distally from the canine region. The posterior surfaces of the models are trimmed so that these lines are extended vertically for half an inch over the backs of the models.

This line limits laterally the surface of " absolute sustentation " (described by P. Robin). The surface of absolute sustentation of the mandible represents the base of a cone of sustentation passing through the surface of absolute sustentation of the superior maxilla.

Smooth over the posterior surface of the bite blocks; put them back on the models and draw a straight line joining the oppposing alveolar crests. If the blocks do not extend as far back, fill in the deficiency with a little compo or wax and make a line on that. This line limits the cone of sustentation at these levels.

The third stage is to place the three guiding pins for the articular surface and upon which to mount the sphere. These points, one anterior and one posterior, must be as far away from each other as possible.

The incisive point: the intersection of the midline and the plane of occlusion is the best place to fix for the anterior pointer.

The two posterior points are taken one on each side at the distal extremity of the bite blocks on the straight line joining the crests of the ridges and in a position half-way between the upper and lower ridges. This is for convenience in setting up.

See that these two guiding points are the same height from the base, testing it with the trusquin.

Having fixed the pointers in position, take away the bite blocks and remove the upper model from the occlusor.

Place the sphere so that it rests on the three pointers and fix it to the upper fork of the occlusor with plaster.

The platform is now no longer used, and the occlusor is detached from it.

The next step is to define the cone of sustentation at the level of the articular surface and the setting up of the lower teeth (establishing the sagittal and frontal curves automatically).

With the aid of the pencil marker, draw on the sphere the periphery of the future dental arch by keeping the concavity of the tracer hard against the sphere. Slide it along the sphere with its base following the line on the centre of the lower ridge, from the canine region back beyond the second molar region on both sides.

This mark represents the prolongations of radii of the sphere, drawn on the shell, the outer extremity of the future arch in the molar and premolar region.

To limit the anterior region of the lower arch, one refers to the bite block which was contoured in the mouth. The block is put back on the model and the line drawn in pencil on to the sphere.

One now has the horizontal curve limiting the form of the arch marked on the sphere. The teeth are set up to these lines with the incisive edges of the incisors and canines, and the buccal cusps of the premolars and molars on the lines. The molars and premolars are mounted so that the buccal and lingual cusps are in contact with the sphere (the lingual cusp of the lower first premolar excepted) and so that the long axis of the teeth is well within the prolongation of the radius of the sphere. Sometimes there is the danger of the lower molars impinging upon the tongue. To avoid this, narrow teeth should be used, and sometimes they may be put 1 or 2 millimetres outside the line on the sphere, and in extreme cases it will be necessary to cross the bite for the last molar.

The lower denture being set up and waxed up, it is seen that the sagittal and frontal curves are automatically established, and the intensity of the curve varies according to the type of arch.

If the sagittal curve is pronounced, that is, in a narrow, arched mouth, the curve of Spee will be accentuated, the molars and premolars inclined mesiodistally and less lingually.

If, on the contrary, the arch is wide, that is of large frontal diameter, the curve of Spee will be very little and the lingual inclination of the molars greater.

Before finishing the lower denture, it is, best to verify the relationship of the articular surface of the lower with the surface of sustentation of the upper.

To do this, the upper molars are temporarily set up in plasticene or pink wax on the ridges of the upper. One sees at once whether the main axis of the teeth passes through the centre of the ridge, and one can correct the lower set up if necessary, always making any alterations with the aid of the sphere.

The little pencil runner is used to check up the relation of the lower teeth to the maxilla.

If the difference between the arches is too exaggerated to allow of correction by pushing in the lower teeth without making them impinge upon the tongue, then the upper molars must

be put inside the lower molars, so crossing the bite. These cases Dr. Villain finds are relatively rare.

The lower denture is now waxed up and finished without preliminary trying in.

If one vulcanises on the model, a wax over-bite must be made of the lower teeth on the upper model mounted on the occluseur, so that the finished lower is put back into the over-bite and a new model cast in occlusion under the lower denture after vulcanisation. If it is particularly desired to try in the lower before finishing, it should be made in compo, base plate and sticky wax, so that it is very rigid and will not become distorted in the mouth.

We will take it that the lower is vulcanised and finished before the upper is set up.

A base plate is made for the upper of some rigid material, and on this small blocks of composition are moulded. The molars and premolars are mounted in occlusion with the lower denture.

In place of the incisors and canines is a block of composition with a layer of wax on top of it. This block should project 2 or 3 millimetres beyond the lower incisors.

To verify the appearance of the upper incisors, they are set up on a wax base plate with wax blocks at the back.

The intra-buccal articulation is now verified by trying in the completed lower denture and the upper set up in compo, and base plate. The patient is instructed to move the mandible forwards and sideways, keeping the molars in close contact all the time. The articular plane is corrected so that the canines and incisors move lightly on it. A thin layer of soft wax is flowed on to the articular plane and the movements of mastication made again. If these movements are not made sufficiently, a piece of articulating paper placed between the molars will give something to chew on and the movements are easier.

The lower incisors and canines make their imprints on the wax, both in movement and at rest on the articular plane.

The wax set-up of the six fronts is tried in for appearance and any alteration made at the time.

Laboratory.—The work is now returned to the laboratory for completion.

Put the upper model and set up of the posterior teeth and the anterior articulation plane on the occlusor, and cast an over-bite of the articular surface, both of the teeth and the wax.

One also casts a key of plaster of the six fronts which have been tried in and adjusted in the mouth.

Now these six fronts are set up in position on the back teeth set-up. They are set up with the aid of the key of plaster for their position and are articulated by grinding the incisive edges and lingual aspect to the surface of the articulation key.

One thus obtains an exact incisive articulation in relation to the articular surfaces of the molars, the condyles, and with the correct amount of over-bite.

We have now the contact of the posteriors and the anterior teeth simultaneously ensured in the dental arches at the time of mastication, because the cusps of the molars are running in the condylar trajectory, and the articular surface has served as a guide in this intra-buccal method of registration.

The relation of the trajectory through which the condyles travel, the cusps of the molars and premolars, and the free edges of the incisors and canines remain constant; the equilibrium during movement and the balance of the dentures in action is realised.

PARTIAL DENTURES

The apparatus is useful for partial dentures to secure the balance of articulation which is so necessary.

After taking the bite and establishing the parallelism to the plane of Camper in the mouth, the models are mounted on the occlusor or parallel to the platform. One mounts the sphere in the same way with the aid of the pointers, which are placed as before, one in the mid-line in front and two at the posterior extremity of the cases. When a last molar is standing, the distal occlusal portion of this tooth is taken as the level, and the other side made to correspond in height from the platform.

Any cusps of teeth that prevent the sphere resting on these points are cut off.

The lines on the ridges are marked and then transferred to the sphere, and the lower teeth set up, as described before, for the full cases.

The lower denture is set up, tried in the mouth and then finished. The upper is prepared in the base plate and impression composition; teeth are only set up where molars and premolars come into occlusion with artificial antagonists. The ridges are completed with compo, with a bed of wax on the surface. The trajectories of the lower teeth are registered on this in the mouth, a plaster key is made of this articular surface, and the upper teeth set up to this, and the upper denture finished.

In a partial denture where no lower denture is being made, the sphere is not used, but only this method of getting the trajectory of the lower teeth

marked on wax on the compo ridges, and an over-bite taken and set up to that.

I shall have much pleasure in doing cases on this Stabiloccluseur in the denture department here and assisting any of you who feel inclined to try it for yourselves.

I did a case recently taking a typical hospital patient to work on. The models and articulation I have here. I used hospital teeth and materials all through, and the actual setting up was done quickly and easily, and the desired three-point contact and balanced articulation was achieved.

Even if one is not going to use this apparatus for all cases, its use for some cases brings out some of the essential points in the routine of setting up teeth, and on those grounds alone it is well worth a trial.

I have kept you over-long, I am afraid, but I thank you, Mr. President and Gentlemen, for your patience in listening to my paper.

Hiking in Jugoslavia

By C. F. Brockington, Esq., September, 1930

THE past has a great fascination, but there is even greater fascination in the past that still lives. In the sparsely-populated lands of Bosnia and Hercegovina, in the Dinaris Alps, the lives of the peoples can have changed little with the passage of centuries. It is scarcely 50 years since the Austrians built from north to south a narrow-gauge smoky mountain railway through the country, which, by bridging the malarial swamps in the valleys of the mountains, has brought them into contact with the Croatian civilisation of the Dalmatian coast on the south and which has brought them within reach of the Hungarian plains in the north. This bare half-century seems little to have affected the peoples of this unfertile country.

The traveller who braves the journey southward from Belgrade and risks asphyxiation in the 248 tunnels through which he must pass as he winds slowly through the mountains, will be greatly rewarded. He will find these Bosnians in picturesque national costumes absorbed in the task of obtaining a livelihood. Nor is this an easy task. These porous "karst" mountains, through which water and soil drain alike, are the reverse of fertile.

Wherever it is possible, and in many seemingly impossible places, cultivation is in progress. The stones are cleared and small areas no larger than a golf green are sown with corn. The crops are cut by hand, the corn threshed by horses' hooves and the grain winnowed by hand in biblical fashion. The resulting black bread is, excepting in the towns, the staple diet.

To the woman the task of minding the cow grazing among the rocks, and, as the day winds slowly on, she may be seen, for heaven knows what reason, gently prodding the animal from place to place. While so engaged she spins continuously with the distaff and provides the hand-weaving looms the wherewithal to make thick cloth for the native costumes.

Towards eventide the stillness of the mountain fastnesses is broken by the prayers of the faithful. A lonely figure, silhouetted against the sky-line, stands wailing to Allah.

These lands are well timbered, and along the banks of the Drina, that flows its course through magnificent gorges, afforestation schemes give a limited measure of employment to the men. Here, for the pay of 30 dinara (2*s*. 6*d*.) a day, exclusive of food, the men work long hours, felling and trimming the trees and dragging them down with oxen. On one oft-repeated musical note, these tall Serbians heave and strain in unison. Slowly the logs topple over, to rumble and tumble down the slopes to the river's bank.

Great rafts are hammered together and floated down to the saw-mills at Belgrade. Such a raft is not easy to steer through the narrow gorges and down the rapids that are of no infrequent occurrence. Fore and aft a tall Jugoslavian woodsman wields the improvised oar which must serve to bring her sharply round the bends and negotiate the obstructions.

The traveller who persuades the raftsmen to take him as a passenger will pass through country which can be traversed in no other way. He must be prepared to lose all his belongings and swim to safety if the vessel disintegrates. Doubtless the danger of this is not so great as the raftsmen would have him believe. Yet, on the steepest of the rapids, the great logs creak and groan. Cross-beams tear themselves complainingly free from the grasp of great six-inch nails. Water rushes over the straining structure and, for one breathless moment, disaster seems inevitable. Then, once more, we are floating down on calm waters.

In these intervals of peace between the rapids nails are driven back and cross-beams resume their sway. "Dobra, dobra," is the only comment from the raftsmen as the water drains from their leather opanche and from their embroidered stockings. Certainly in their skilful hands "All

is well." It is not difficult to imagine a less regular sequence of events in other hands.

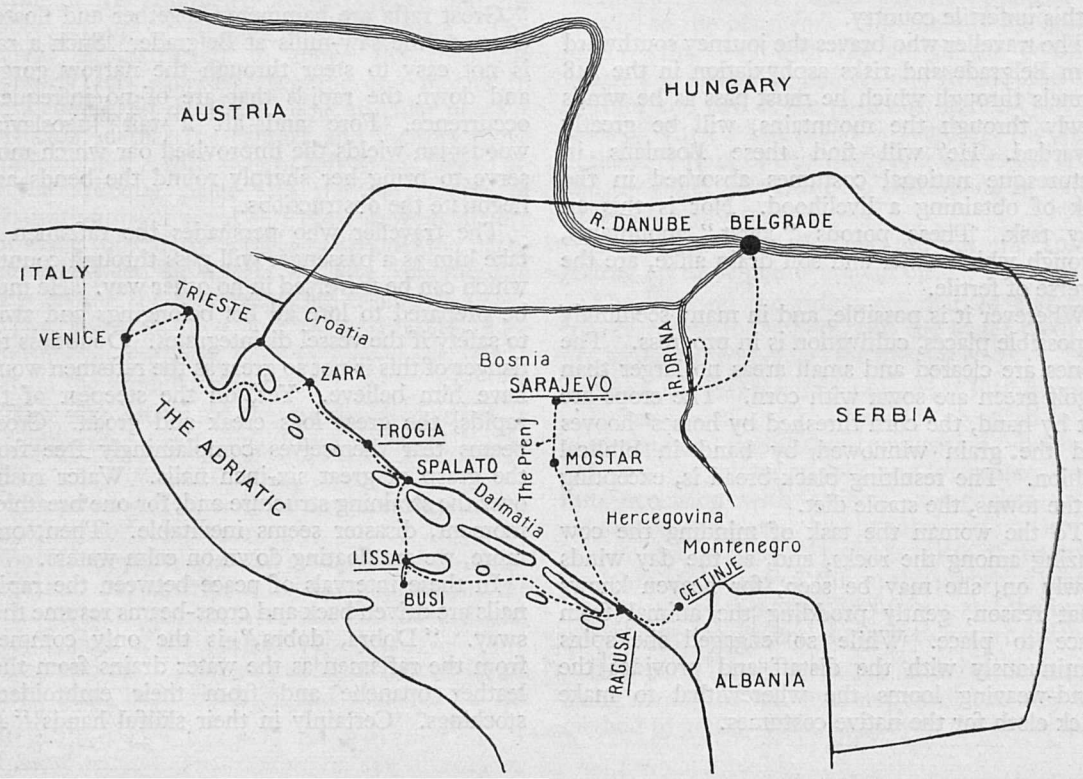
Farther southward, once more in the mountain railway, we reach Sarajevo, spread out on the slopes of the hill. In this semi-westernised town Mohammedan mosques and Christian churches alike abound. There is a great deal to see. In the westernised centre of the town there is the bridge on which Archdule Ferdinand was shot and the memorial tablet to his murderer, " who thus freed the Serbian peoples from domination." In the Mohammedan quarter there is a large mosque, said to be the finest in Jugoslavia, with an intriguing notice on the outer gate which says : " To No-Moslems is the entry in the Mosque-yard during the prayer no-permited."

One realises that here, at least, the American and English tourist has penetrated in fair numbers.

Most interesting of all is the Mohammedan market. Here, in a narrow alley-way of open-fronted shops, one may bargain for metal hand-work, shouting above the din of hammered metal. Then from the business quarters in the valley one may follow any street and climb the hill slope through the residential areas and on up to the crest of the hills which encircle the town and the line of abandoned forts on the eastern ridge, once the frontier between Austria and Serbia.

From Bosnia yet a little farther southward into Hercegovina and Mostar, the ancient capital of this land. Midway between Mostar and Sarajevo there lies an ancient township Jablanica, whose Roman bridge spans the gorge at the point where the Narenta torrent begins its short course to the sea. This is magnificent country. Great heights of " karst " rock, bare of life, tower above the gorge on either side. The highest of these mountain peaks may be easily scaled, for in years past an Austrian mountaineering club has marked out a path. The dobs of paint, that mark the way, are still just visible. Here and there are notices in German, now almost indecipherable. It is best to make an early start and be well on the way before the heat of the day. In more than one spot the climber will bless the methodical Austrian mountaineers, as he drinks his fill at the stone cisterns filled with clear spring water. He will drink deep, for the very sight of the bare fissured rocks, crevassed like a glacier, will parch his throat. After the last well has been passed, very soon the conversation will dwindle and the tongue cleave to the roof of the mouth

By noon, provided he has started at sunrise, the climber will reach the summit of the Prenj, the highest peak in Jugoslavia. As far as the eye can reach the mountain ranges of Hercegovina stretch out beneath. The heat of the sun is tremendous, and the thought of camp on a grassy slope beside the Narenta torrent, flowing in the gorge some thousands of feet below, hastens the



departure. It is difficult to imagine a region where the actinic force of the sun could be greater. The skin, already browned by weeks of exposure, takes on, once more, an ominous salmon pink.

Mostar boasts but 17,000 inhabitants and is entirely Mohammedan. The Narenta gorge divides the town and is crossed by bridges many centuries old. Mosques are plentiful, and their dainty minarets rise from among the stone buildings on either side of the gorge. Over the old 16th-century bridge a string of mules may be passing. Black-veiled Mohammedan women and Christian women in national costumes mingle in the narrow streets. In the noon-day heat the town is very still and the shopkeepers nod over their wares in the open-fronted shops. Little can have changed here, one feels, and, it is to be hoped, little will, for the exquisite grace of this eastern township would for ever fade under the tourist's influence.

We have now reached the southernmost limit of these primitive lands, where the great interest in life is in maintaining life. Bosnia and Hercegovina we now leave behind us as the mountain railway takes us southward to cross the last of the karst mountains and the malarial swamps that lie in the valley.

A few hours to Ragusa on the Dalmatian coast —the Dalmatian coast where the Croats have inherited the civilisation of the Romans and Greeks. No more striking change could be experienced in so few hours of travel. From Mohammedan Mostar to Christian Ragusa.

If you have "hiked" through the mountains and have been content to let your beard grow, you will haste now to shave and make yourself presentable.

From Shusak, on the Italian frontier in the north, to Cotor, by Albania, in the south, this rocky coast of the Adriatic is a vineyard, dotted with cities of stone of ancient origin. Everywhere, as you wander among their streets, you will find old stone doorways and crested lintels, dating from the Middle Ages.

Ragusa has been named the "Pearl of the Adriatic." It is built upon two rocks jutting out into the sea. Nothing but stone has been used in its construction and it is indescribably clean and sweet. In recent years the town has extended inland with modern buildings, but the old part of the town is quite unchanged. This is entered by a stone archway leading to the quayside. From the main street side-streets lead to the maze of ways that intersect the old town. Except for the main street, none would permit the passage of a cart. The tourist has reached here as he has all Dalmatian coast towns, since they are so easily arrived at by boat, but they remain still very largely unspoiled.

The sea-bathing in the creeks on either side of the town is especially delectable. This is a coast surpassing all other coasts in charm. Rugged like the Cornish coast, yet still; the rocks very white in the intense sunlight, beneath the blue sky; the sea motionless and transparent. Were there no humans a deathly stillness would reign. No birds wheel round overhead, no waves worry the rocks nor winds ruffle the surface of the sea. Here you may lie out on some isolated rock and gaze through the clear blue waters, watching the myriads of fishes that dart over the rocky bottom, while the sun dries out a layer of salt and further tans your skin.

All who come to Ragusa automatically enlist the services of a car to take them to Cettinje, once the capital of Montenegro. If you are fortunate, you will find yourself hastening over the rough unmade road (such as in England we now never see, even in our country districts) under the guidance of one "Flying Peter." He will tell you that he has made the journey 3,000 times in the course of 15 years. Later, when you have been some 50 miles along the coast and visited stone-built towns as old as Ragusa, sprinkling thickly with the dust of your passage the fig orchards and vineyards that line the way, the car begins the perpendicular rise to the summit of the rock that is Montenegro.

This road has been engineered on the side of a precipice and rises almost vertically, in a series of hairpin twists, to a height of 4,000 feet. Flying Peter will recount, as I am sure he must always do, how twice his car-load has been over the precipice and how twice he has been the only survivor. But even this will not prevent you from gazing down upon the coast-line of headlands and bays spread out beneath. A small, toy-like steamer threads the bay of Cottarro; little dots that must be towns are sprinkled along the coast.

The car breasts the top and speeds inwards to the capital. This road, the only one in Montenegro, was built by the Austrians after the country had been conquered. But how was it ever conquered, this rock? Two men and a donkey could seemingly have kept back an army for ever. Yet, perhaps, the very barrenness of the country was its downfall. Nowhere is there cultivable land, if one excludes the small areas, no larger than a putting green, where the rocks have been cleared and, perhaps, a spring wells up. The meagre crops of corn here reaped must have failed to nourish even the hardy Montenegrin, deprived of outside help.

Cettinje is but a village. It is largely composed of the residences, now deserted, of the ambassadors of all the nations. The inhabitants seem still to live by tourists. English is universally spoken. There is little to see here and, indeed, little time to spend if you are to be back in Ragusa by night-

fall. Yet it is well to climb the rise above the town and gaze down into Albania.

There is a service of steamers plying along the Dalmatian coast among the islands of the archipelago. So it is possible to return to Venice up the Adriatic, putting in at such of the ports as you may wish to see. From Ragusa a cargo steamer runs to Kormica, on the island of Lissa, calling at all the islands on the way.

Here one may camp a few days, awaiting the weekly steamer to Spalato, back on the coast. It is difficult to camp with any pleasure on these islands, for there is nowhere any great depth of soil and the chalky rocks have been dissolved out into a most irregular contour. Nor is it possible to light a fire for cooking purposes, because of the dryness and the risk to the vines. We were obliged to accept the hospitality of a kindly inhabitant and cook our evening mess in his house.

The language of this little township is Italian, but the visitor must be careful not to question their patriotism to Jugoslavia. The inhabitants are industriously employed in a fishing industry, exporting boxes of salted fish. In the summer months there is a steady stream of tourists to visit the Blue Grotto, on the island of Busi, two hours' sail to the south.

This grotto is quite remarkably beautiful. The entrance is through a narrow archway in the rock, admitting a small rowing boat. A short channel leads inwards, turns sharply at right angles and opens into a wide cavern. The light of this cavern enters by an opening in the rock beneath the sea and is, at a certain time of the day when the sun is suitably placed, an intense blue.

The water in the grotto is transparent to a depth of many fathoms, serving only to impart to everything below the surface its own bluish tinge. At a great depth down, as if embedded in bluish gelatine, lies an octopus, the keeper of the cavern. We make a second visit to the grotto later in the day, swimming beneath the chain that guards the entrance—an awe-inspiring adventure to the least susceptible of minds.

From the island of Lissa a few hours' run by the weekly steamer brings one back to the mainland at Spalato. Spalato has been re-named Split. Like many another Jugoslavian town, it has had to sacrifice, on the altar of the nationalistic spirit, its own picturesque name.

Here, in late Roman times, Diocletian built an enormous palace of which little now remains. The town has grown up around the palace and much of the building material has come from the walls. In some places the walls do still remain. In others, pillars may be seen embedded in the walls of the houses. Three thousand people now live within the shell of the old palace.

Within a few miles of Spalato, on the rising ground behind the town, a large and flourishing Roman city has left abundant remains of its many public buildings. Unhappily, the people of this land give little heed to their Roman treasures. Little or no excavation has been undertaken, nor have the exposed buildings received any attention. We left Salona (re-named Solin) and followed the coast northward to Trogia, a mediæval town of exceptional interest.

From the 15th century for 400 years this town, with much else of the Dalmatian coast, belonged to Venice, and, in Venetian days, Trogia was seemingly a rich township. No further building has been undertaken since those times. Old, heavily-built stone doorways still face one another across narrow streets. The compass of the town cannot exceed a quarter of a mile—a block of stone, as it were, placed along the quayside and cut into slices.

From the quay, enter any of these alleyways and you will shortly be lost in a maze. The houses, in which rich Venetians once lived, are now workshops. Barrel-making is the industry of the place—barrels for the Dalmatian wine. As you pass down the streets you will see every stage of the work. Here, with a great din, the hoops are beaten around the casks, while, next door, a barrel top is trimmed and the lid secured into a neatly-fashioned groove.

Four in a family so engaged, each in a different process, turn out, I am told, four to five barrels a day. In the dark interiors of others of these houses, one can see girls seated at hand looms or men labouring on wine-presses or fashioning the leather sandal which everywhere is worn.

Trogia is a hive of industry. All are so busily engaged that they give no more than a glance at the stream of visitors, who come to this coast by steamship to spend an hour or two wandering in this maze of ways and gazing at the folk at work.

It is but 24 hours by steamer to Trieste and Venice. We must bid farewell to Jugoslavia.

Looking back, one sees a nation of vastly differing peoples and lands, welded together by politicians in Paris. Everywhere in this mental panorama there are indications of the wise rule of Austria. In my ear ring the plaints of the Croats, whose wines, once marketed by Austria, now sell for a few dinara the barrel. There is talk of the Serbian oppression, for there is poverty in Dalmatia where once there was comfortable living. There is talk of the Italian menace.

"Cuvajmo nase more" ("Jugoslavs, guard your coasts!"), says every matchbox cover, and is eloquent of unrest. How much better the peace and prosperity of the Austrian rule to which, unhappily, there can be no return.

Medical School News

BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

CENTENARY MEETING.—Section L : Educational Science

DURING the Centenary Meeting of the British Association for the Advancement of Science to be held in London next September, the Education Section aims at giving members as wide an opportunity as possible of seeing, within the limited time of the meeting, whatever may most interest them in the wide range of London's educational institutions.

Early in August a programme of visits to places of educational interest will be issued; at least ten of these will be definitely arranged; but many more, offering a wide range of interests, will be suggested and provided for if application for tickets is made before the opening date of the meeting. Further, if request is made early in September, the organisers of these visits are prepared to make every effort to arrange for visits to places outside those indicated in the programme. It is hoped thus, by inviting members to express their wishes beforehand, to enable visitors to London to utilise their time to the best possible advantage and to see those educational institutions in which they are particularly interested.

With the generous co-operation of the University of London and of the London County Council, a booklet will be prepared giving some idea of the varied and comprehensive character of London's Educational activities, with particular reference to those that have been developed to a special degree in a special manner. The booklet will contain three sections :—

Section I will deal with the University and its associated institutions.

Section II will contain an account of the special activities of the Education Department of the London County Council.

Section III will present some features of that varied field of educational effort which may be described as " unofficial."

This handbook will be made available for members of the Association on the first day of the Centenary Meeting.

A feature of Section L arrangements in connection with the Centenary Meeting will be its co-operation with the British Institute of Adult Education and the Commission on Educational and Cultural Films in the organisation of an Exhibition of Mechanical Aids to Learning to be held at South Kensington. The exhibition, which will open just before the Centenary Meeting, will comprise :—

(*a*) Exhibits of apparatus connected with television, broadcasting, the film, the gramophone, the epidiascope and other similar inventions, with demonstrations of their working;

(*b*) A series of lectures, discussions and demonstrations of the use of these types of apparatus under class-room and lecture-room conditions.

A complete catalogue of the exhibits, with comments on their educational uses, will be prepared and made available to members.

Reviews

Recent Advances in Radiology. By Dr. PETER KERLEY. *Price* 15*s*.

THE title of Dr. Kerley's book is somewhat misleading, for, apart from the last chapter, it consists principally of a description of the radiological appearances of structures, both normal and abnormal, which occur in the human body and the correlation of these findings with the post-mortem appearances. From this point of view the book is a very good one; the chapters on the lungs and chest being excellent. The information is accurate and given concisely.

The reproductions of the radiograms which illustrate the text are numerous and excellent; each has been carefully chosen to demonstrate clearly the abnormality which is present.

A chapter of some 18 pages is devoted to the recent advances of X-ray therapy; this is not up to the standard of the other part of the book, the information given is neither sufficiently advanced for those who practise X-ray therapy nor sufficiently elementary for those who know little or nothing about this particular subject. It would, perhaps, be advisable in future editions of this book to have this part re-written at very much greater length.

Excluding the chapter on therapy, the book is good. It consists of some 300 clearly printed pages; there is a full bibliography at the end of each chapter and a good index at the end of the book. We can recommend Dr. Kerley's book to all those who are interested in radio-diagnosis.

Guy's Hospital Reports. April, 1931.

THIS volume opens with a paper by Sir William Hale-White on the Reports of previous years. This contribution includes a paragraph on Moxon and another on John Cooper Foster, who was the first man in England to perform gastrostomy. Many other famous figures of the past are touched upon, and anecdotes are told about some, such as Gull, Carrington, Hilton,

Cock, etc. The origin and spread of Listerism at Guy's are described, and many interesting details are brought out.

A scholarly and thoughtful study by Professor Nicholson on Form and Structure occupies some 40 pages. Intricate as the subject is, and fraught with all the terrible mysteries of biochemistry and physical chemistry, yet the writer has made his paper extremely readable and interesting even to the average low-brow medical man.

The Syndrome of Glossitis, Dysphagia and Anæmia, by Dr. L. J. Witts, is a paper based on the analysis of 13 cases of what those who frequent the Combined Round know very well as the Plummer-Vinson Syndrome.

Late Chlorosis, by Dr. L. J. Witts, is based on 18 cases of chlorosis in women during the last ten years of life. The cases are extremely well analysed, and the writer's deductions are clear and interesting, but his conclusion that the anæmia is due to "inherent inadequacy" of the blood-forming organs leaves us in doubt as to what he considers to be the true pathology of the disease.

R. S. Harrison describes a case of primary aplastic anæmia, which was treated with over a hundred transfusions in the course of a year.

Dr. Watt and Dr. Knott have written an absorbing paper on the value and the difficulties of irradiation in the leukæmias, and they have striven to point out that there must be an adequate supply of active phagocytes present in the blood-stream for irradiation to have any chance of success. The case histories of 16 cases are recorded, and the text is relieved with some admirable micro-photographs.

Eric W. Sheaf is represented by a concise account of the modern treatment of acute appendicitis. His conclusions are that all cases should be submitted to operation as soon as a diagnosis has been reached, except those patients who are obviously recovering. He is an ardent advocate of the muscle-splitting incision, and intimates that the only time when a paramedian incision is of value is when the surgeon's diagnosis is wrong. Drainage is discussed very well, and he stresses the importance of not searching for the appendix in an appendicular abscess.

A case of iron encephalopathy is described by Dr. Hurst. This unusual condition followed the administration of large doses of iron and ammonium citrate for an achlorhydric anæmia following gastrojejunostomy. Recovery both from the anæmia and the cerebral attack followed.

M. Shaw has written a short paper on eye paralyses in diphtheria. His conclusion that the patient's liability to paralysis is almost independent of the administration of antitoxin and due chiefly to an inborn susceptibility to the toxin is interesting, and it is refreshing to hear his outspoken condemnation as valueless of drugs designed to relieve the condition.

Sport

Cricket

Guy's v. Crofton Park

THIS match was played at Honor Oak on Monday, May 25th, and resulted in a win for the Hospital by 6 wickets. Each side played 12 men a side, and Crofton Park batted first, scoring 57, S. M. Whitteridge taking 4 wickets for 16. The Hospital replied with a total of 72.

On going in again, Crofton Park batted well, and put together 113 for 10 wickets, when they declared, leaving the Hospital 98 runs to get in 90 minutes, which they did with the loss of only 5 wickets, Outfin being the highest scorer with a quick 43.

Guy's—First Innings

E. V. B. Widdowson, l.b.w., b. Hall	11
T. D. Ridsdale, b. Adams	2
G. V. Doherty, b. Adams	2
J. A. G. Starnes, l.b.w., b. Hall	18
S. A. Whitteridge, c. Kelleher, b. Jordan	19
H. Cameron, b. Cowan	8
M. Walt, st. Jenkinson, b. Cowan	1
D. J. Rees, b. Cowan	4
G. Ellison, b. Jordan	4
S. M. Whitteridge, b. Cowan	0
E. Evans, l.b.w., b. Cowan	0
R. M. Outfin, not out	0
Extras	3
Total	72

Guy's—Second Innings

E. V. B. Widdowson, b. Sharpe	6
T. D. Ridsdale, c. Jenkinson, b. Cowan	9
G. V. Doherty, b. Cowan	0
J. A. G. Starnes, not out	19
S. A. Whitteridge, b. Cowan	1
D. J. Rees, not out	24
R. M. Outfin, c. Adams, b. Wells	43
Extras	8
Total	110

Bowling—First Innings: G. V. Doherty 2 for 12, S. M. Whitteridge 4 for 16, D. J. Rees 3 for 20, M. Walt 1 for 7. Second Innings: S. A. Whitteridge 2 for 22, G. V. Doherty 4 for 35, S. M. Whitteridge 0 for 24, D. J. Rees 2 for 19, H. Cameron 0 for 4.

Guy's v. Chelmsford

THIS match was played at Chelmsford on Saturday, May 30th, and resulted in a win for Chelmsford by 15 runs.

Our opponents batted first, and by good bowling and fielding Guy's dismissed them for 108, Davis taking 4 for 23 and Whitteridge 4 for 30. On going in to bat, the Hospital appeared to have the match well in hand when Walt and Ridsdale put in 30 runs before being separated. A collapse followed, however, and the innings closed for 93.

Scores—Chelmsford, 108 (Christy, 36 not out); Guy's, 93.

Guy's

T. D. Ridsdale, c. and b. Eastwood	16
M. Walt, st. Elgin, b. Prewer	20
S. R. Peatfield, c. Christy, b. Eastwood	4
J. A. G. Starnes, b. Eastwood	2
G. V. Doherty, l.b.w., b. Prewer	1
E. V. B. Widdowson, l.b.w., b. Eastwood	15
H. Cameron, b. Gibbs	12
E. I. Davis, b. Bradley	0
R. V. Payne, b. Bradley	7
R. M. Outfin, c. Young, b. Eastwood	11
S. M. Whitteridge, not out	1
Extras	4
Total	93

Bowling—Whitteridge 4 for 30, Payne 1 for 17, Doherty 1 for 9, Davis 4 for 23, Walt 0 for 11.

Guy's v. St. Anne's, Virginia Water.

THIS match was played at Virginia Water on Wednesday, June 3rd, and resulted in a somewhat easy win for the Hospital. Batting first, our opponents were all out for 58, Walt and Whitteridge sharing the bowling honours—the former taking 5 for 28 and the latter 4 for 15. Outfin again excelled behind the stumps, dismissing five men, four stumped and one caught.

On batting, the Hospital knocked up 178 for the loss of 4 wickets, Walt making a very good 55.

Scores—St. Anne's, 58; Guy's, 178 for 4.

Guy's

T. D. Ridsdale, c. and b. Devine	28
M. Walt, c. White, b. Potter	55
S. R. Peatfield, c. Llewellyn, b. Harding	32
J. A. G. Starnes, not out	39
R. M. Outfin, c. Harding, b. Potter	7
G. V. Doherty, not out	13
Extras	4
Total	178

E. V. B. Widdowson, H. Cameron, H. D. Devan, S. M. Whitteridge and R. A. P. Hogbin did not bat.

Bowling—Doherty 1 for 15, Walt 5 for 28, Whitteridge 4 for 15.

Guy's v. Catford Wanderers.

THIS match was played at Honor Oak on Saturday, June 6th, and resulted in a draw. Catford Wanderers batted first and, batting rather slowly, put together 152 for 8 wickets, declared, Payne being quite the most successful bowler with 5 for 20.

On going in to bat, the Hospital fared badly, and had it not been for a good stand by Peatfield and Doherty, Guy's would probably have been beaten. Doherty batted splendidly, and remained undefeated with 51 to his credit.

Scores—Catford Wanderers, 152 for 8 declared (J. H. Evans, 42); Guy's, 108 for 8.

Guy's

T. D. Ridsdale, c. Everett, b. Hook	10
M. Walt, l.b.w., b. Everett	0
E. V. B. Widdowson, c. Rossignol, b. Hook	4
J. A. G. Starnes, b. Hook	1
S. R. Peatfield, b. Henderson	36
G. V. Doherty, not out	51
H. Cameron, b. Everett	1
R. V. Payne, b. Everett	2
E. I. Davis, b. Everett	0
Extras	3
Total	108

R. M. Outfin and S. M. Whitteridge did not bat.

Bowling—Payne 5 for 20, Davis 0 for 17, Walt 0 for 20, G. V. Doherty 0 for 21, Cameron 2 for 20.

Golf

Guy's v. South Lodge

THIS match was played at South Lodge Golf Club on Wednesday, June 3rd, and resulted in a win for the South Lodge Golf Club by 6 matches to 2.

Guy's		*South Lodge*	
P. H. Lomax (Capt.)	0	O. Sienssen (3 & 1)	1
H. C. A. Weighell	0	E. J. Slater (3 & 1)	1
M. W. Pilcher	½	H. P. T. Lattery	½
T. H. Chignell	0	S. Goodall (5 & 4)	1
B. J. Doran	½	G. Winchester	½
R. B. Sumerling (3 & 1)	1	P. G. Gale	0
W. J. Cotton	0	C. F. Bennett (1 up)	1
P. Hanbury	0	A. Campbell (2 & 1)	1
Total	2	Total	6

Guy's v. West Kent

THIS match was played at West Kent Golf Club on Wednesday, June 10th, and resulted in a win for the Hospital by $4\frac{1}{2}$ matches to $3\frac{1}{2}$.

Guy's		*West Kent*	
H. C. A. Weighell	0	H. C. Bates (2 & 1)	1
G. O. Jelly (3 & 2)	1	F. W. Fyson (Capt.)	0
B. J. Doran (5 & 3)	1	R. E. B. Overton	0
W. C. Kendrick (7 & 6)	1	R. Leman	0
P. H. Lomax (Capt.)	0	S. Lindley-Jones (5&4)	1
R. B. Sumerling	0	S. J. McGloin (2 up)	1
P. Hanbury (5 & 3)	1	S. Gillett	0
F. J. R. Stoneham	$\frac{1}{2}$	T. B. Daniels	$\frac{1}{2}$
Total	$4\frac{1}{2}$	Total	$3\frac{1}{2}$

Guy's v. Shortland's

THIS match was played at Shortland's Golf Club on Wednesday, June 17th, and resulted in a win for the Hospital by 5 matches to 3.

Guy's		*Shortlands*	
H. C. A. Weighell (2&1)	1	A. Woolley	0
B. J. Doran	0	J. W. Cattermole (Capt.) (6 & 5)	1
G. O. Jelly (Capt.) (4&2)	1	R. Haste	0
W. C. Kendrick (2 up)	1	E. Gunn	0
T. H. Chignell (7 & 5)	1	L. B. McDougall	0
R. B. Sumerling	0	R. Williamson (2 up)	1
P. Hanbury	0	G. W. Cattermole (3 & 1)	1
F. J. R. Stoneham (1up)	1	S. F. Gauntlett	0
Total	5	Total	3

Crossword Solution

D	O	S	A	G	E	S	R	A	N	U	L	A
E	V	E	N	S	■	A	■	P	E	T	A	L
N	A	N	A	■	■	W	C	■	B	A	N	K
T	T	T	■	R	E	L	I	C	■	H	C	A
A	E	■	B	I	F	■	R	A	T	■	E	L
L	■	C	O	M	F	O	R	T	E	R	■	I
■	B	I	C	■	E	■	H	■	S	U	P	■
A	■	C	H	A	R	L	O	T	T	E	■	W
N	O	■	E	V	E	■	S	A	Y	■	B	A
T	B	A	■	E	N	T	E	R	■	E	R	R
R	E	M	A	■	T	I	D	■	R	E	I	D
U	S	E	R	S	■	N	■	W	I	L	D	E
M	E	N	T	A	L	T	H	O	M	S	E	N

Hospital Information, etc.

Pass List

SOCIETY OF APOTHECARIES OF LONDON
FINAL EXAMINATION.
June, 1931.
Forensic Medicine.
E. S. St. John

Papers by Guy's Men

A. A. Osman and H. G. Close. Diagnosis of uræmia. *B.M.J.*, 1931, i, 1064.

C. P. Symonds. Otitic hydrocephalus. *Brain*, 1931, liv, 55.

Change of Address

Dr. J. D. Thomas, Dan-y-graig, Cheyne Road, Stoke Bishop, Bristol.

H. Chapple, F.R.C.S., 149, Harley Street, W.1. *Welbeck* 4444.

Births

COUSER.—On May 9th, 1931, at Yezd, Persia, to Frances Dora (née Birch), wife of H. G. Couser, Imperial Bank of Persia—the gift of a son.

LANE.—On June 15th, 1931, at The Cedars, Midsomer Norton, Somerset, to Janet (née Outram) and Kenneth E. Lane—a daughter.

MATHER.—On June 11th, 1931, to Dorothy, wife of Horace Mather, 73, Rodney Street, Liverpool—a daughter.

STEVENS.—On May 11th, 1931, at Wilbraham Nursing Home, to Cynthia Adrienne (née Lodge), wife of C. Laceby Stevens, L.D.S., R.C.S. (Eng.)—a daughter.

Marriages

CURTIS—CASTLE.—On June 17th, 1931, at St. Alban's, Golders Green, Arthur Hazelton Curtis, L.D.S., R.C.S. (Eng.), of Southampton, to Madeleine Castle, of Golders Green.

SCORER—KIDD.—On June 2nd, 1931, at Emmanuel Church, Bridlington, Yorkshire, Stephen A. Scorer to Agnes May Kidd.

STARLING—CRACKNELL.—On June 13th, 1931, by Rev. T. Gilling Lax, at St. Paul's Church, Rusthall, Tunbridge Wells, Edwin Cyril Widmerpoole Starling, M.C., M.R.C.S., L.R.C.P., only son of Dr. and Mrs. E. A. Starling, of Tunbridge Wells, to Nancy Ethel, only daughter of Mr. and Mrs. Edward Cracknell.

EDS. { P. M. F. B.
P. V. R.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

Volume XLV — *11th July* 1931 — *Number* 1121

PASSIM

BY pursuing a steadfast policy of not letting the right hand know what the left is doing, the Hospital perpetrates some peculiar anomalies, and by a process of steadfastly shutting one eye and putting its tongue in one cheek, it continues to conceal them. For instance, the late Garden Fete and Sale of Work was a tremendous piece of work, an effort involving the outlay of considerable money and more considerable energy on the part of many willing volunteers—the Ladies' Association's greatest success for some time from the point of view of enjoyment and popularity. Yet who, outside the comparatively narrow circle of students, nurses and staff, and their relatives and friends, had heard of it even a day before the event? What publicity had been arranged for it in the press? The whole affair was as hushed up as though the Ladies' Association had arranged a crime instead of a fete; the papers were as silent as the papers ever can be on any really important affair.

This process of "spoiling the ship for a ha'porth of tar" is only too common a failing of the English character, but it is a most annoying failing for those who have to work in the ship. The latest instance of it in our own particular instance is the new out-patient building where, in a well-equipped surgery, the Baby House Physician is expected to carry every specimen of urine he wants to test across a hall full of patients and relatives, and then to boil it over a spirit lamp. Such lack of forethought can occur only where affairs are ordered by our characteristically national institution—a committee.

▭

DURING the past week several respectable owner-drivers belonging to the Medical School, but unfortunately unattached to the Staff, have received a rude awakening. Whilst pursuing their arduous duties in the Hospital, necessitating their residence, temporary or permanent, in the College, they have taken advantage of the excellent garage accommodation offered by the Front Quadrangle and the temperate summer weather. They have therefore parked their cars by night in the Front, and in the morning, remembering the decree of the Board of Governors and fearful lest there should be insufficient accommodation for members of the Staff, removed their respective vehicles to the vicinity of the College in Maze Pond. They have been forced to act thus on account of the lack of economic and reliable garage accommodation in the vicinity of the Hospital. But now these unfortunates have been disturbed. No longer may they leave their cars by night in the Front. The Governors do not regard with a favourable eye the presence of an occasional somewhat dilapidated vehicle decorating the Front Quadrangle. The student car-owner has been forced to seek garage accommodation elsewhere.

Whilst realising that it would be impracticable to allow all and sundry thus to make a convenience of the immediate precincts of Thomas Guy, surely some exception should be made for those who, owing to the nature of their work, are forced to reside in the College. There is the sad story of the extern who, unable to navigate a bicycle along the slippery and tortuous alleys of the Borough, carried out his duties and paid his visits in his trusty Austin Seven. But now, unable to accommodate his car at the Hospital by night and fearful of trouble with the Metropolitan Police should he park his humble vehicle in Maze Pond, he is forced on receipt of a Card to take a five

minutes' walk to the nearest garage to collect his car.

The Board of Governors is certainly justified in endeavouring to limit the number of cars using the Front for parking accommodation, but it appears that the time has arrived for some arrangements to be made for those who are resident in the College. We appreciate the Board of Governors' desire to preserve the sanctity of the Front Quadrangle, but a casual stroll around the Hospital will reveal to any observant person space which could be very conveniently used for the accommodation of the students' humble vehicles. May we suggest that the space alongside the Medical Block on the Maze Pond side could be put to a more useful purpose than that of a happy hunting ground for cats?

WITH regret and misgiving we announce the retirement of Mr. P. M. F. Bishop from the post of Editor of the *Gazette*; with regret for the loss of his companionship and of his guidance, with misgiving as to the probable future of the paper left in our uncertain hands. His imagination was most fecund, his style most apt. He will indeed be missed. As his successor, Mr. Batchelor will be welcomed, and we feel little doubt that his welcome will not be undeserved.

THE following appointments to the post of Clinical Assistants in the Clinical Wards have been made:—

W. H. Greany	C. H. Rogerson
R. A. Q. Lay	E. Sharp
P. H. Lomax	J. C. Wharton

Hæmorrhage in Nose, Throat and Ear Work

A Clinical Lecture by W. M. Mollison, Esq., M.S.

HÆMORRHAGE from any part of the body is almost always alarming to patients and often embarrassing to the doctor.

Hæmorrhage from the nose and throat is common, but seldom fatal; the commonest is epistaxis, or bleeding from the nose.

The first essential for dealing with bleeding from the nose or throat or ear is a good light; this should be reflected from a forehead mirror. Should no satisfactory light be available an electric head-lamp must be used. A nasal speculum or tongue-depressor and appropriate forceps are necessary; small pledgets of wool and a solution of adrenalin chloride and some cocaine, either tablets or a solution, should be at hand; a weak solution of hydrogen peroxide is also useful.

The causes of bleeding from the nose are many, and may be divided into two groups: (1) General; (2) Local.

(1) *General.*—High blood-pressure is a common cause, especially in elderly patients, and, as a rule, the epistaxis serves as a safety valve as it were. Sometimes, however, the bleeding is so severe that patients become blanched, and it becomes necessary to stop it, as in simple epistaxis.

Kidney disease pre-disposes to epistaxis, perhaps in virtue of the high blood-pressure accompanying the renal disease.

Certain anæmias, typhoid, variola and acute rheumatism are sometimes accompanied by epistaxis; measles, too, is a common cause in children. Acute streptococcal infections, the so-called influenza in which the hæmolytic streptococcus is the infecting organism, often give rise to severe epistaxis. Treatment of such cases with anti-streptococcal serum is the best means of checking this hæmorrhage. Occasionally the bleeding is so severe as to produce a secondary anæmia of high degree. Recently a case was seen in which a youth of 16 was so ill as the result of such an infection and the resulting anæmia that transfusion was considered necessary, and this brought about a most striking improvement.

This hæmolytic streptococcal epistaxis can be very embarrassing should it become necessary to give an anæsthetic—for instance, for an acute mastoiditis, as may easily happen. The epistaxis may start during the administration and fill the pharynx; on more than one occasion I have had to plug the nose during an early stage of anæsthesia.

Other general causes may be mentioned. Subjection to low atmospheric pressures while climbing and, in the case of men working in caissons, should the pressure be lowered too rapidly.

Lastly, epistaxis occurs in relation to the menstrual periods, so-called vicarious menstruation.

(2) *Local.*—The commonest cause of simple epistaxis is rupture of a small vessel on the nasal septum. Kiesselbach's area on the anterior part of the septum provides the area from which the bleeding comes in the great majority of cases; the final branches of the spheno-palatine artery are those involved. This artery has been called the artery of epistaxis. Occasionally the bleeding occurs from the vessel on the floor of the nose.

The bleeding from these small vessels on the septum may be slight—brought on by exertion, blowing the nose or, indeed, without any obvious reason; it may last only a few minutes or may continue for an hour at a time.

Osler stated that death from ordinary epistaxis is rare; the longer bleeding continues the greater the tendency of the blood to clot. I have seen only one case in which death resulted from epistaxis and in that case the bleeding vessel was in an abnormal position, far back on the septum.

If the nose is bleeding at the time of examination the site of the vessel can be seen and pressure applied, but if examination is made between attacks the septum should be gently rubbed with wool pledgets till bleeding is started. (Treatment will be given later.)

Other local causes of epistaxis.—Blows on the nose; this does not, as a rule, produce severe bleeding. Fracture of the anterior fossa of the skull produces bleeding and discharge of cerebro-spinal fluid.

Infections of the mucous membrane is another cause of epistaxis; of these diphtheria is the commonest and most important. It occurs in children and examination shows a grey membrane on the septum and sometimes on the inferior turbinal; even gentle lifting of the edge of this membrane will cause bleeding. Perforations of the septum often cause slight bleeding because mucous crusts form on their edges and are torn off from time to time.

Growths of the nose are another cause of bleeding; naturally these are not amenable to the treatment for epistaxis.

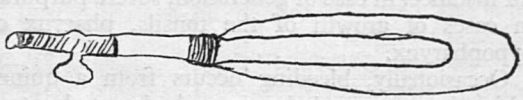
After operations on the nose secondary hæmorrhage may occur, fortunately rare; it is usually profuse and often difficult to stop.

Treatment of simple epistaxis.—If the bleeding is slight, application of a caustic to the bleeding point, after cocainisation, is enough; solid silver nitrate is convenient.

When the bleeding is more severe, apply a small pledget of wool soaked in a solution of cocain and adrenalin. When the area is insensitive, with an electric cautery at a dull red heat touch the spot previously found to bleed; often the first touch may start bleeding again, but further touches will stop the bleeding.

Some dilute yellow oxide of mercury ointment should be ordered for frequent application for a few days; this prevents the scab from being torn off and starting hæmorrhage again.

Sometimes it is a matter of "if at first you don't succeed, try again," and there are difficult cases in which it is no disgrace to have to apply the cautery two or three times to achieve success. Should the bleeding be very severe and no bleeding spot visible, or if the case be one of secondary hæmorrhage after a nasal operation in which the hæmorrhage is often very profuse from the middle turbinal region, a Cowper Rose's bag should be used; this consists of a piece of gum elastic catheter abour four inches long, having the "eye" of the catheter at one end and a small clamp or tap at the other. Over this is slipped a finger-stall, which is bound firmly on to the catheter, the junction being made air-tight.



It is evident that if air is blown into the catheter the finger-stall is inflated, and by then turning off the tap this inflation can be maintained.

For use, the deflated finger-stall and its catheter, smeared with vaseline, is slipped into the side of the nose that is bleeding; it is then blown up to the extent necessary to stop bleeding, and can be left *in situ* for several hours, if need be.

This is most useful, and almost painless.

Another method of stopping bleeding is a plug in the posterior nares; this can be introduced by a Bellocqu's Sound, an ingenious but painful metal instrument.

Better slip a fine rubber catheter through the nose, pick it up on the posterior pharyngeal wall, and attach a strong silk thread to it and pull this back through the nose. To the end of this silk thread a gauze plug can be fixed, and this can then be drawn back through the mouth under the soft palate and so to the posterior nares. Further packing can be introduced into the nose from the front and bleeding thus stopped.

These post-nasal plugs must not be left in more than 24 hours, preferably not more than 12 hours, as infection is very apt to occur and be carried along the tube to the middle ear; the suppuration thus produced is apt to be severe and has often lead to mastoiditis.

There is a rare form of bleeding from the nose, a familial disease originally described by Osler. In this disease bleeding does not cease with any

of the usual measures, and in a case under my care the patient himself always carried a Cowper Rose's bag, which he used himself most skilfully.

Should none of these aids be at hand, the introduction of a strip of gauze soaked in dilute hydrogen peroxide is sometimes effective. There is, too, a gauze prepared already impregnated with adrenalin which is extremely useful.

PHARYNX

Bleeding from the pharynx or naso-pharynx is rare, except as part of an epistaxis when blood runs backwards. It may occur as the result of fractured base of the skull, in which case it is evident that no local treatment is indicated.

Very occasionally bleeding may occur from rupture of small vessels in old people as a result of over-exertion; this is not serious and calls for no local treatment, except, perhaps, giving ice to suck.

In diseased conditions hæmorrhage may occur, for instance, in case of generation, severe purpura; in cases of growth of the tonsils, pharynx or hypopharynx.

Occasionally, bleeding occurs from a quinzy which has extended deeply and ulcerated into a vessel, very rarely this vessel has been the internal carotid, in which case death results.

Similarly, in those very rare cases of aneurysm of the internal carotid bulging into the tonsillar fossa fatal hæmorrhage has been known.

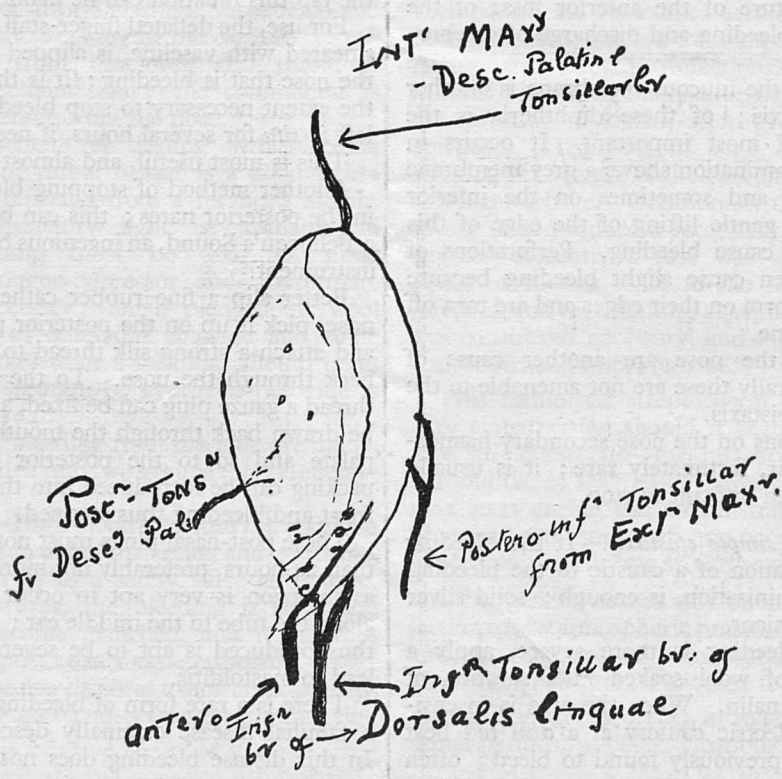
The more common cause of hæmorrhage is the surgeon who performs tonsillectomy. Hæmorrhage occurs at the time of operation, may occur some hours after operation—reactionary hæmorrhage; and again may come on four to ten days after operation—secondary hæmorrhage.

The tonsil is well supplied with blood from :—

1. Tonsillar branch of the descending palatine from the internal maxillary artery.
2. Postero-inferior tonsillar from the external maxillary artery.
3. Inferior tonsillar branch of the dorsalis linguæ artery.
4. Antero-inferior branch of the dorsalis linguæ artery.
5. Posterior tonsillar branch of the descending palatine artery.

In addition, there is a well-marked vertical vein in the bed of the tonsil which often is damaged during removal of the tonsil.

At the end of the operation the bleeding from the vessels should have been controlled; this may appear to have been done, but, on recovery from the anæsthetic, oozing may start and become so profuse as to necessitate active steps to check it.



LEFT TONSIL

To prevent this hæmorrhage it is wise in cases of doubt to suture the posterior and anterior pillars of the fauces at the end of the operation; two sutures of fine catgut are required, one placed as low down as possible, the other between this and the upper end of the fossa. Even should oozing take place the tension produced by filling of the space behind the sutured pillars becomes sufficient to stop the bleeding. Should stitches not be used and the practitioner be faced with post-operative hæmorrhage, he should give an adequate dose of morphia to calm the patient; he then illuminates the fossæ with the mirror.

In many cases in one fossa will be seen a large blood clot, and often the removal of this clot by a tongue-depressor or handle of a spoon will be enough to stop hæmorrhage.

In other cases, on mopping the fossæ a small bleeding spot may be seen, often at the lower part near the tongue; this bleeding spot may be controlled by the application of a fine pair of artery forceps—not an easy procedure, unless the patient is particularly phlegmatic. Pressure may be applied to the spot by means of a small pledget of wool moistened with hydrogen peroxide held in position for five minutes.

There are two or three different clamps designed to exercise pressure mechanically, but they are uncomfortable to the patient and not invariably successful. Without doubt the best means of stopping the hæmorrhage is to sew the anterior and posterior pillars together with catgut; this almost always necessitates giving the patient an anæsthetic.

If the space between the fossa and the sutured pillars is so large that bleeding can continue, a small gauze pad should be placed in it and the pillars sutured over it. This will very rarely be required, but when used is finally successful in even the most difficult cases.

Secondary hæmorrhage from the tonsil fossæ and from the area whence adenoids have been removed occasionally occurs from the fifth to tenth day after operation. Rectal injections of glucose and bicarbonate of soda (2 dr.) in water should be given as a prophylactic, and if hæmorrhage occurs any tendency to acidosis has been found to make hæmorrhage more likely. The fossæ should be examined for the bleeding spot, and if pressure with wool moistened with hydrogen peroxide is not effective, application of the galvano-cautery will be found most satisfactory.

Lastly, it must be emphasised that many cases will be seen with the history of so-called bleeding from the throat, really cases of hæmoptysis. In spite of apparent health and absence of physical signs in the chest in these patients, they must be looked upon as cases of phthisis. In all such cases several examinations of the sputum must be made for the presence of tubercle bacilli, and they will almost invariably be found.

Guy's Hospital Garden Fete

ON Thursday, the 25th of June, the Hospital presented a strange sight, more reminiscent of Hampstead Heath than of a London hospital on a weekday. All the attractions of the fair were there; we were spared a roundabout, but we found a coconut shy, and the only side-show that we sought in vain was the cherry-coloured cat and the smallest horse in the world, both so dear to the heart of the professional showman.

It would be manifestly impossible adequately to criticise every stall and every attraction, for they were legion, but let us try to describe a few which we came across. We went first to fight for a glimpse of Miss Madeline Carroll, but the greater part of the crowd seemed to have forestalled us, and the crush was severe enough to make us repent of our intentions. However, when we did see her, we were recompensed for bruised ribs and crushed toes, for she was a very pretty and graceful figure, and she opened the proceedings with a few kindly remarks which were very much appreciated by the enthusiastic crowd.

Following this formal opening, the crowd dispersed, some to wander through the wards, some to dance and all to spend money. And, indeed, however rigid our intentions and shallow our purse, one could no more resist the blandishments of the elegant young women selling tickets for goodness knows what, than we could the slightly more virile and cacophanous plaints of the youths in white jackets inviting, pleading and imploring people to roll, bowl or pitch; and all of them, however they disguised the fact, wanted our money.

In the East Quadrangle, in the Surgical Block, were several stalls, amongst the most attractive being Mrs. Rowland's booth of flowers and vegetables, Mrs. Venables' stall of china and a book-stall organised by Miss Phillips and Mrs. Stanley George. Mrs. Stamm (Streatham Branch) was in charge of a dainty display of necklaces, and a Woolworthian note was struck by Mrs. Stanley

Mason's shilling stall. Lady Bonsor, Lady Fripp and other members also had laid out an attractive display here.

A rival firm (Mrs. Eaton, Southwark Branch) was running a sixpenny stall in opposition on the other side of the Colonnade, and the Dulwich and Denmark Hill Branch was represented by a very attractive cakes' and sweets' counter. A more practical note was sounded by Mrs. Dowsett, who sold household provisions, and a more fantastic by Mrs. Pearce and her daughter, who had a "white elephant" stall and did a very brisk trade in balloons, which might be seen for days afterwards hanging from the curtain-rails in every ward in a dejected and deflated condition. There was also a very pretty toy stall in this corner. In the Colonnade itself, a most beautiful display of flowers had been set up by many willing helpers under the direction of Mrs. Herbert Hunt and Mrs. Davies-Colley.

When we had reached the Park, we thought that we had escaped, but alas, only from the frying-pan to the fire, for roaming the Park were numerous bands of desperate creatures, some male, some female, who sold us, at prices varying from sixpence to half-a-crown, tickets for tea, tickets for concerts, tickets for everything and anything but what we wanted, and that was a nice quiet sit-down and a drink; but that we found later, and in the most unlikely part of the Hospital.

On the beautiful green grass, the pride of the Works Department, there had sprung overnight, like a gigantic and unnatural growth of fungi, innumerable large parasols, and beneath the shade of each was gathered a band of desperadoes who invited one to try one's luck at a hundred and one different ways of making easy money. We tried them, or most of them, and soon came to the conclusion that "easy" money is a relative term

By kind permission of "Photopress"

Miss Madeline Carroll and a group of youthful admirers

—anyway, we lost it very easily. Prominent amongst these skilled robbers were Messrs. McNabb, Colbeck and H. Fagge, who did yeoman service in seeing that all the money received went into the right pockets.

A very delightful display was the dancing by a group of tiny children on the lawn in front of the Baby Ward. So rare in such acts, their grace was natural and their fascination unassumed.

Scattered throughout the Park were many stalls. Mrs. Eyre was responsible for one of fancy goods, Mrs. Mutch for one of tobacco and cigarettes. Mrs. Gredell had organised a sale of those frivolities, dear to the female heart, of the dressing table that go under the name of toilet goods. Mrs. Hurst, Mrs. Steward, Lady Shipway and Mrs. French had also expended no little energy in arranging for various stalls; and Mrs. Slesinger worked very hard at her strawberry and cream booth—her profits, large as they were, must have been badly hit by the cold and uncertain weather, which threatened to pour with rain (or even snow) at any moment.

Mrs. Eason, Mrs. Cook and Mrs. Langmuir Watt were responsible for the dancing and refreshments obtainable in the Nurses' Home, and, indeed, we found an unexpected haven of rest in one corner of the Home during quite a considerable part of the afternoon. Teas were served in the Nurses' Home and the Massage Department, and concerts were held in the Physiological Theatre. Throughout the afternoon the R.A.M.C. band provided music at frequent intervals.

It is obviously impossible to mention all or nearly all of those who were responsible for the organisation of so delightful a fete; more impossible to mention all those willing assistants who helped to make the affair such a success. The only fault we have to find with the proceedings was that they were so poorly advertised outside Hospital circles, and that a male patient in Bright

By kind permission of "Photopress"

Miss Madeline Carroll rides in state

was the unwilling recipient of a prize in the shape of a permanent hair-wave. The whole affair reflected great credit upon the energy of the Ladies' Association and upon the skill of Mrs. Davies-Colley—the profits promise to be somewhere in the neighbourhood of £1,500, but the official figures are not yet published. We print below a list of the profits made by the various side-shows, as we feel that all those sore-throated enthusiasts who helped to make such a success of the affair will like to see the fruits of their efforts in material form.

STUDENTS' SIDE-SHOWS

	£	s.	d.
Roulette	35	11	2
Coconut Shies	16	5	6
Balls in Bowl	11	3	0
Darts	6	7	0½
Penny on Plate	6	5	9
Rings on Coins	6	1	9
Electric Coin Board	4	17	7
Marionettes	4	10	5½
Racing Wheel (Derby)	4	6	2
Flick Pennies	4	5	0
Skittles	4	2	10½
Chequer Board	4	2	0
Treasure Hunt	4	0	0
Pick My Pocket	3	6	11
Automatic Machines	2	11	11½
10*s.* Hidden Under Paper	1	10	0
Double Roll (?) Boxing	1	9	7½
2*s.* 6*d.* in Bucket	1	6	2
Weighing Machine	1	3	11
Pillow Fight	0	12	3
	£123	19	1½

By kind permission of "Photopress"

A typical scene at the Fete

A Case of Hyperpiesia in a Young Girl

GERTRUDE S., æt. 15 years. Admitted to Lambeth Hospital from the Front Surgery at Guy's on the 10th of April with a diagnosis of " Epilepsy and Hyperpiesis."

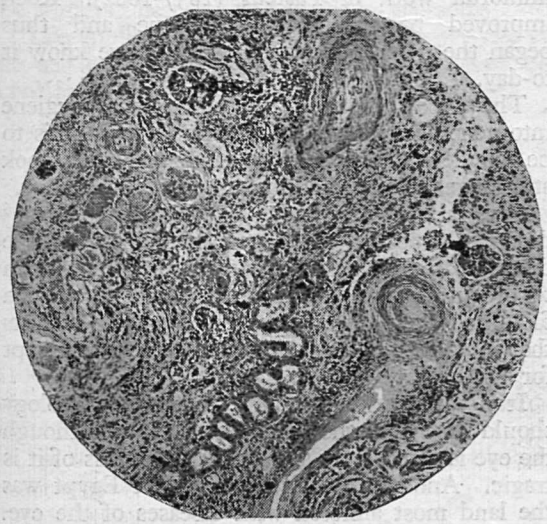
Previous illnesses.—Scarlet fever when five years old.

History of present illness.—Healthy until a year before admission, when she began to have bilious attacks about once a month. Early in March, 1931, she had six fits, after which she was kept in bed for a fortnight. Three days before admission she had a fit and remained unconscious for four hours. She had another fit shortly before coming up to the surgery.

Condition on admission.—Not quite conscious. Irritable and resented being examined. Banging heart sounds. Albuminuric retinitis. B.P. 300/200. Urine almost solid with albumen on boiling. Incontinent. Blood urea=134 mgm. per 100 c.c.

Her condition improved to such an extent that she was allowed up and about the ward. On the day before her death, her first period began, and from then onwards she became rapidly worse. Vomiting was continuous, and shortly before the end, Cheyne-Stokes breathing set in. There was no œdema at any time.

Post-mortem. — Thin, wasted body. Brain showed no abnormality. Heart greatly enlarged, about three times the normal size. Left ventricle grossly hypertrophied with walls about two inches thick. Kidneys—left, small, fibrous, weight=60 gm.; right, large, mottled, pale cortex, of " myelin " type, weight=160 gm. (normal weight =110-140 gm.). Rest of organs normal.



It will be seen from the micro-photograph above (kindly taken for me by Dr. C. F. Cosin) that the arteries are greatly thickened, and that the rest of the kidney constituents are not affected to a similar extent.

There are at least three points of interest in connection with this case :—

1. The very high blood-pressure in a young subject. A blood-pressure of 300 mm. of Hg. in a much older person would be a comparative rarity.

2. The probable precipitation of a crisis by the onset of a period. It is now well known that menstruation is accompanied by chemical and physical changes in the body as well as by mental symptoms.

3. Although hyperpiesia and " primary granular kidneys " are not unknown amongst children, this case appears to be an unusually marked example in a young subject.

I am indebted to Dr. Ian Morris, Clinical Pathologist to Lambeth Hospital, for providing me with the details and post-mortem material; and to Dr. G. F. Stebbing for permission to use the notes.

H. G. C.

Guy's Hospital Gazette

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The Editor will, at all times, be glad to consider articles or sketches, provided that they are accompanied by the writer's name and address, not necessarily for publication. The payment that the GAZETTE can offer is merely nominal. Authors who desire reprints of their papers should make their own arrangements with the printers when they return their proofs. All contributions to be addressed to *The Editor*, who does not accept responsibility for the views expressed by contributors.

Hygienic Principles in Relation to Ophthalmology

By H. Rosenberg

MR. CHAIRMAN and GENTLEMEN,—"Happy the man," wrote Virgil, "who has attained to the knowledge of the causes of things," and 450 years later, St. Augustine added, "there are none which it concerns us more to know than those which affect our own health."

Although these scripts were written centuries ago, our social and physical existence has had to traverse the long lanes of disease and ignorance which were prevalent during the dark Middle Ages, before following the paths which lead to a more enlightened and hygienic mode of living.

"It cannot be denied," states Newman,[1] "that human life to-day is potentially a better thing than in the past." The improvements are being brought about by the realisation that in the science of medicine must be embodied not only the diagnosis and cure of disease, but also a knowledge of its causation, of its prevention, and of its earliest beginnings.

"The chief factor in the production of disease," said Galen, "is the preparation of the body to suffer it." Assuming this to be true, the first line of defence of the human body is a resistant one. This can be attained by paying special attention to man's habits, his dietary, exercises, and his sanitation, with the object of improving his general conditions. This, broadly, is what is meant by the application of hygiene to medicine.

Hippocrates, born 460 B.C. in the Island of Cos, was at his zenith during the Golden Age of Greece, and fully merits the title of "Prince of Physicians." He was the first physician to bring system into the hitherto scattered realms of medicine. He classified the causes of disease into those concerned with the seasons and climates and external conditions, and those concerned with food and the habits of mankind. He wrote on the four humours of the body—blood, phlegm, yellow bile and black bile; on the four elements of therapeutics—earth, water, air and fire; and on the four qualities—hot, cold, moist and dry. He taught the principles that disease consisted of the invasion of the body and of the body's resistance.

Some five centuries later came the Galenic tradition which lasted for 1,400 years. Haiser, the medical historian, has said: "To every question the Galenic system had an answer, for every problem, a solution; and this spurious air of infallibility led the spirit of man in fetters for centuries and shattered any hope of progress."

Throughout the Middle Ages medicine slept and plagues and epidemics were rife, exacting toll of human lives, although the School of Salerno[2] had laid down such excellent principles as:—

"Rise early in the morne . . .
Both comb your head, and rub your teeth likewise.
Long sleepe at after-noones by stirring fumes
Breeds Slouth and Agues, Aking heads and Rheums.

"Wine, women, baths, by Art or Nature warms,
Us'd or abus'd do men much good or harme."

With the Renaissance came a new and fruitful era in medical science. Philosophical theories were supplanted by scientific facts, superstitions and witchcraft were gradually uprooted and replaced by understanding. Leonardo de Vinci and Vesalius were followed by men like Galileo and Descartes, Harvey and Malpighii—experimentalists who laid down the foundation of modern pathology, and the physicians, Sydenham (1624-1689) and Boerhaare (1668-1728).

In the 19th century Lænnec, Bright, Addison and Scarpa, all physicians who advanced theories and made the discoveries which bear their names to-day. Virchow established the truth of "omnis cellula e cellula"—this was[3] "the greatest advance which scientific medicine had made from its beginning." Then came the new knowledge of infection clarified by Sammelweiss,[4] after years of painstaking observations, and followed by the immortal work of Pasteur (1857-1882). Koch improved bacteriological technique and thus began the new science of hygiene as we know it to-day.

The introduction of the principles of hygiene into general medicine took centuries, and it is to be wondered at that these same principles took still longer to be introduced into ophthalmology.

For, about 1500 B.C., the Papyrus Ebers[5] described specific cures and medicines for eye diseases, thus ophthalmology was the first branch to break off from the medical tree. So great a fame had been achieved by the Egyptian oculists that in 560 B.C. Cyrus, the Persian, sent to Egypt for a specialist.

It is easily understandable that ophthalmology should have been the first speciality, for, although the eye is a relatively small organ, the loss of it is tragic. Another good reason is that Egypt was the land most afflicted with diseases of the eye.

However, the progress and development of ophthalmology did not advance steadily, but became stagnant after the fall of the Roman Empire.

Prior to 1851, the interior of the eye had never been explored. In that year, however, von Helmholtz, a brilliant physicist, produced an instrument which he called the ophthalmoscope, and which revolutionised the medicine and surgery of the eye.

Jackson[6] has stated: "It is significant that about 1861 every surgeon at 'Moorfields' was a general surgeon." Men like Sir William Bowman and J. Hutchinson were all classed as general surgeons. Except in the minds of a few individuals, no speciality had yet proclaimed its existence in the widening field of medicine.

When scientific studies advance they often do so by leaps and bounds. Hence, following Helmholtz, we had Van Graefe, who perfected operative and diagnostic technique, and in 1857 treated glaucoma by iridectomy. Donders opened up a field of ophthalmic practice greater than had ever been known before, and a host of workers discovered lesions and symptoms that had not even been suspected.

Although these enthusiasts put ophthalmology on a scientific basis as an important branch of medicine, it did not gain real merit until Sir William Gowers showed the necessity of the ophthalmoscope in the diagnosis of disease of the central nervous system. J. Hutchinson consolidated this position when he called attention to the ætiology of interstitial keratitis. By the discovery of cocaine by Dr. Carl Koller, of Vienna, in 1884, a new era in ophthalmic surgery commenced. Nettleship, too, played an important part in this rapid growth of modern ophthalmology by studying heredity as a factor in glaucoma.

The application of the principles of hygiene in its relationship to modern science may now be considered.

IN INFANCY

Injuries at Birth.—Lequeux[7] examined the eyes of the newly-born 24 hours after birth and discovered lesions in 25 per cent. of all cases, the order of frequency being :—

1. Paralysis of muscles.
2. Corneal lesions.
3. Retinal hæmorrhages.

Rowland[8] examined the eyes of 400 infants in a Boston Maternity Hospital within 24 hours of delivery. He found :—

194 infants with hazy discs—48.5 per cent.

23 infants with pupillary membranes—5.75 per cent.

11 infants with retinal hæmorrhages—2.75 per cent.

The pelves of the 400 mothers, as estimated, showed only 204 to be within normal limits.

It is significant that contracted pelvis or general disproportion was observed in about 50 per cent. of cases. Therefore, it can be concluded that difficult labours give rise to pathological eye conditions which might be avoided to a great extent.

The progressively increasing number of expectant mothers who now attend at ante-natal clinics tends to eliminate many difficult labours. We are justified, therefore, in assuming that, with supervised parturition, there will be less trauma to the infant generally and a great reduction in eye injuries, with their devastating after-effects.

Ophthalmia Neonatorum.—Ophthalmia neonatorum is due to an inflammatory condition of the conjunctivæ, and is responsible for at least 25 per cent. of the blindness throughout the world.

The disease is almost always preventable. It usually makes its appearance three to five days after the infant is born. The eyelids become swollen and red, there is a thin watery exudate which in a day or two changes its character into a thick, copious, purulent discharge. The cornea becomes hazy and in the worst cases corneal abscesses occur, which may perforate, leading to a complete disorganisation of the eye and total blindness.

It has been estimated that 50 to 60 per cent. of cases are due to the gonococcus.

In 1879, Samuel Hague,[9] an obscure Camberwell physician, wrote a short letter to the *British Medical Journal* in which he stated that he always wiped the moisture from the lids of the newly-born before the eyes opened, and he had no cases of ophthalmia, but it occurred in some cases which were born before his arrival. This letter seems to have been entirely ignored.

To Crédé has been given all the credit for the preventative treatment of this disease. In 1881 he used a 2 per cent. solution of silver nitrate to instil into the infants' eyes.

Statistics showed in one group, untreated, 10 per cent. developed the disease, and in a similar group, treated, only 0.17 per cent. contracted the disease When it is considered that the gonococcus cannot gain entrance through an unbroken epidermal surface it is a moot point whether the beneficial results were due to the instillation of silver nitrate (2 per cent. !) rather than to the wiping away of moisture from the closed lids.

Bishop Harman[10] collected a large series of cases, and in 1913, 24.16 per cent. had gonorrhœal

ophthalmia; and in 1920, 19.79 per cent. had gonorrhœal ophthalmia.

Although these figures show a great improvement, we cannot expect much better figures until we realise that the way to prevent gonorrhœal ophthalmia is by (1) treating the source of the infection, viz., the maternal birth canal; (2) paying more detail to the cleansing of the lids before they have opened. Vigorous and thorough treatment of the infected parents will do more to prevent the disease than the instillation of quantities of silver nitrate into already infected eyes.

IN CHILDHOOD

Although hygiene of the eyes can play a large part in infancy, it is in childhood that most progress will be made. The opportunities offered to the medical profession are innumerable, and it is nothing short of criminal to waste these golden years.

As far back as 1848 the evils of the Poor Law Schools[11] in promoting epidemics of ophthalmia were demonstrated clearly. In 1874, Nettleship examined all the Poor Law Schools and stated: "Not 15 per cent. of the eyes could be described as healthy." It is noteworthy that in 1881 Risley made his report on 4,000 eyes of school-children in the United States of America. He recommended certain needed reforms in the lighting and furniture of the school-rooms, and pointed out the importance of astigmatism and choroidal lesions in the development of myopia. Nine years later propaganda was started "to save the eyes during school life."

School Hygiene.—In 1903 two ophthalmia isolation schools were established in London in charge of Treacher Collins. In that year 625 children were admitted, of whom 292, or 46.7 per cent., suffered from trachoma. This isolation of infected eye cases was so efficacious that in June, 1930, only 253 cases were admitted, and of these but 67, or 26.5 per cent., were trachomatous.

Harman[12] maintains that the best line of attack of trachoma is through an efficient school service, and remarks that, "if we could keep the children of one generation free from the disease, trachoma would be extinct."

One of the great advances made was in 1907, when the Education Act was passed by Parliament. By this Act the local educational authorities were responsible for the duty of making adequate and suitable arrangements for the medical inspection of children attending public elementary schools, and for attending to their health and physical conditions.

It is found that over 50 per cent. of the school children examined at eight years of age are unable to pass the normal vision tests. Those requiring spectacles receive prescriptions, and those with grossly defective or infective eye conditions are drafted to special schools.

That these methods are justifiable can be found in the fact that when these children are re-examined at 12 years of age the percentage of defective eyesight is found to be heavily reduced.

It should be clearly understood that the ill-effects of defective sight are progressive and cumulative, and that the treatment of a condition like strabismus is similar to that of a surgical emergency—immediate.

Thousands of people with apparently two normal eyes are, in reality, partially amblyopic, due to a neglected squint which, in the majority of cases, is amenable to treatment in its early stages.

The five great prophylactic requisites for school children are:—

1. Correcting errors of vision.
2. Adequate lighting.
3. Proper seating facilities.
4. Suitably printed books.
5. Restriction in the amount of close work.

1. A consultant ophthalmologist appointed under the Education Act of 1907 deals effectively with errors of vision.

2. Ill-illuminated class-rooms lead to nystagmus and vertigo, accompanied by various digestive disturbances. The illumination of rooms will be referred to in more detail under lighting.

3. Desks should be of a height which will allow the occupant to see the blackboard without unduly straining the extra- or intra-ocular muscles. The old, low benches gave rise to wrinkled and wizened faces and to worried and nervous children.

4. Not only must figures on the blackboard be readable, but books should be chosen with clear, large, legible type.

This type may be used

for books for children between the ages of seven and eight.

This type may be used

for books for children between the ages of eight and nine.

Blackboards tend to become a greyish colour when they have been used for some time, and these should be repainted at intervals.

The position of the blackboard must be considered, and it should not be placed in front of a window.

5. Fine needlework requiring great eye-strain should be excluded from the general school curriculum.

(*To be continued*)

Correspondence

The Musical and Operatic Society's Performances

To the Editor of the GAZETTE

SIR,—"The Yeomen of the Guard" is probably the most difficult of all the Gilbert and Sullivan operas. The music is a severe tax on amateur voices and the humour is curiously elusive and subdued. All the more credit, then, to the Guy's Hospital Musical and Operatic Society for their most successful performances during the week ending June 13th.

Some of the principals had a harder task than others, for the simple reason that "The Yeomen of the Guard" contains some of the worst parts which Gilbert ever wrote. The Lieutenant of the Tower is a hopeless stick; Sergeant Meryll is little better; and Dame Carruthers marks the extreme limit of Gilbert's belief that all elderly spinsters are fair game. Great praise is, therefore, due to Miss Fuller, Mr. Hodgkin and Mr. Rushbrooke for making these figures live, and live so successfully. On the other hand, Jack Point, Wilfred Shadbolt and Phœbe Meryll are first-class parts, and Miss Buchanan, Mr. Chamberlain and Mr. Barber obviously enjoyed them. So did the audience. Colonel Fairfax and Elsie Maynard have little to do but sing some beautiful songs, and here Mr. Hankey and Miss Megan Thomas were more than equal to the occasion. Their singing was delightful. A final word of praise is due to the Chorus, who did their work with real animation and attack. Their performance reflected great credit not only upon themselves but upon their musical director.

Yours, etc.,

IAN HAY.

The Debating Society

To the Editor of the GAZETTE

SIR,—Among the constituent institutions of the Clubs' Union I understand there was once a Debating Society. Might I be so bold as to inquire of those whom such matters concern, what became of this society? If, as is apparently the case, the spirit of controversy has died among us, it would be interesting to learn the date of its decease; and, more, if there are those to be found who would be willing to resuscitate the corpse.

Should we, in fairness to ourselves, allow the "Faculty of Medicine" to fall behind other University courses in the art of that organised wrangling which so broadens a man's outlook at college?

Yours, etc.,

"PROANDCON."

Guy's Hospital,
S.E.1.

The United Hospitals' Swimming Gala

HELD at the Bath Club on the evening of June 30th. A very merry show altogether. A preponderance of ladies gave a splash of colour to somewhat sober surroundings. Their squires, too, gave a splash, less colourful, but just as brightening. Perhaps a gluteal region or so did suffer as the stairs to the cooling-room became increasingly slippery, but these little mishaps will happen.

In the water, R. V. C. Sutton, of Bart.'s, distinguished himself. He started the evening by breaking his own record over 50 yards. Ladies of the Bath Club, with mammoth vital capacities, next performed cunning stunts under water and in the air. F. H. Weston, of Guy's, next won the diving competition, but Bart.'s carried the event on points. The nurses then swam 50 yards amidst great acclamation. Sutton next proceeded to break his own 100 yards' record, and was followed by a light-hearted diving display by members of the Amateur Diving Association. The new relay race, consisting of four individuals swimming 1, 3, 1 and 2 lengths respectively, was won by Bart.'s. The nurses again obliged with a team race (in which Guy's was not represented—to our great chagrin).

The Inter-hospitals' team race of 6 lengths was won by Bart.'s. After this race the competitors were requested to stay in the water until their names had been verified. They could be seen standing shiveringly in the shallow end, but their hopes of dressing were blighted by the presentation of the Cup by Mrs. Vick. After this ceremony the final of the Water Polo was played by Bart.'s and Thomas's. The former had the game rather to themselves, and won by a wide margin of 12 goals to 2.

INDIVIDUAL RESULTS

50 *Yards*.—1, Sutton (Bart.'s); 2, Young (St. Mary's); 3, Howell (Guy's); 4, Walker (Guy's). Time, 24¼ seconds (a record).

100 *Yards*.—1, Sutton (Bart.'s); 2, Young (St. Mary's); 3, Vartan (Bart.'s); 4, Walter (Guy's). Time, 54¼ seconds (a record).

Diving.—1, Weston (Guy's), 5 points; 2, Brocklebank (Bart.'s), 4 points; 3, Kennedy (St. Thomas's), 3 points; 4, Goodwick (Bart.'s), 2 points.

Inter-Hospitals' Relay Race.—1, Bart.'s; 2, Guy's; 3, St. Thomas's.

Inter-Hospitals' Team Race.—1, Bart.'s; 2, Guy's; 3, St. Thomas's.

Nurses' Team Race.—1, Middlesex; 2, Bart.'s; 3, University College Hospital. Time, 1 min. 15 secs. over 4 lengths (a record).

Nurses' 50 Yards' Race.—1, Miss Engleden (London); 2, Miss Bates (U.C.H.); 3, Miss Adams (Guy's); 4, Miss Bauman (Royal Free).

Result of Swimming Events.—1, Bart.'s, 27 points (Inter-Hospital Swimming Cup); 2, Guy's, 13 points; 3, St. Mary's, 8 points.

Diving.—1, Bart.'s, 6 points (Inter-Hospital Diving Cup); 2, Guy's, 5 points.

Inter-Hospital Water Polo Cup won by Bart.'s.

Nurses' Team Race Cup won by Middlesex.

Sport

Fencing

University of London Fencing Club

AT a recent committee meeting of the London University Fencing Club it was decided to award "half purples" to the following members: D. H. Irish, D. M. Paterson and S. W. Wright, for their records in University matches during the last season. It is to be noted that all of these members are also members of the Guy's team. At the Annual General Meeting of the same club G. W. Lawrence was elected Assistant Hon. Secretary for the following season, and S. W. Wright re-elected to represent Guy's Hospital on the Committee.

Guy's v. Ashley Green

ON June 20th the Hospital met Ashley Green, the Buckinghamshire village fencing club, in a four a-side foil and epée match. The contest was held in the open air at the Old Oak Farm, Ashley Green, amid surroundings which were, in the language of Vine Street, "truly rural." Guy's, unfortunately, could not raise a very strong team, and so must be congratulated on losing by such a small margin as 17 defeats to 15.

In the foil event, which was lost by 10 defeats to 6, only Pitts, who fought excellently to win all his bouts, could find cause for elation. Forbes was not at his best, and won only one fight. Holman and Lawrence were equally unsuccessful.

Guy's were, perhaps, rather fortunate to win the epée pool by 7 defeats to 9, but, nevertheless, it was a notable feat in the absence of two or our regular epéeists, Wright and Lawrence, who has greatly improved recently. Both did well to win three victories each. Pitts, although not so successful as with the foil, won two fights, but Irish, who seemed to lack confidence, could only win one.

The keenness of the contest was considerably increased by the presence of a comparatively large and appreciative gathering of spectators.

Scores.—Foil: Pitts, 0 defeats; Forbes, 3 defeats; Holman, 3 defeats; Lawrence, 4 defeats. Epée: Wright, 1 defeat; Lawrence, 1 defeat; Pitts, 2 defeats; Irish, 3 defeats.

Tennis

Senior Inter-Hospitals' Cup
Second Round

Guy's v. University College Hospital

Singles

H. G. N. Cooper lost to F. C. Gregory 6-3, 2-6, 0-6.
J. E. Giesen beat H. C. Stewart 3-6, 6-3, 6-3.
J. A. Sidebottom beat H. M. Chappel 6-2, 6-1.
R. Bruce-Pearson lost to L. B. Norman 4-6, 6-4, 4-6.
C. C. Mailer beat O. S. Heynes 6-3, 6-2.
C. Van der Post beat A. M. P. Laurent 6-2, 6-2.

Doubles

H. G. N. Cooper and J. E. Giesen—
Beat J. C. Gregory and A. M. P. Laurent 6-3, 6-2.
Beat H. C. Stewart and H. M. Chappel 6-4, 6-1.
R. S. Bruce-Pearson and C. W. Van der Post—
Beat H. C. Stewart and H. M. Chappel 6-4, 4-6, 6-4.
Beat L. G. Norman and O. S. Heynes 6-4, 6-4.

C. C. Mailer and E. Sharp—
Beat J. C. Gregory and A. M. P. Laurent 3-6, 6-1, 7-5.
Beat L. G. Norman and O. S. Heynes 6-4, 6-2.
Three matches unplayed.
Result—10-2.

Junior Inter-Hospitals' Cup
Second Round
Guy's v. University College Hospital

Singles

J. L. Freer beat Stewart-Wallis 6-1, 6-1.
H. Cowen drew with Davson 6-4, 6-8.
H. D. Robinson beat Bowen 6-0, 6-1.
E. C. Zorab beat Moore 6-3, 6-1.
W. L. Ogle beat Brée 6-3, 6-1.

Doubles

J. L. Freer and K. C. Moss—
Beat Stewart-Wallis and Flew 6-3, 6-1.
Beat Moore and Brée 6-0, 6-2.
E. C. Zorab and W. L. Ogle—
Beat Bowen and Davson 6-2, 6-1.
Beat Moore and Brée 8-6, 6-3.
H. Cowen and H. D. Robinson—
Beat Bowen and Davson 8-6, 6-1.
Beat Stewart-Wallis and Flew 6-2, 6-0.
Five matches unplayed.
Result—10-0.

Golf
Guy's v. Royal Wimbledon

ON Wednesday, June 24th, the Golfing Society were very kindly entertained at Royal Wimbledon Golf Club by Dr. F. A. Knott, who got together a very good scratch side of Royal Wimbledon members. It was a very exciting match and resulted in a win for the Hospital by 7½ matches to 6½. The evening was a great success, and very much enjoyed by everyone.

SINGLES

Guy's		*Royal Wimbledon*	
H. C. A. Weighell	1 up) 1	R. Hughes ..	.. 0
L. W. Cann ..	.. 0	E. Marzetti	(5 & 3) .. 1
H. B. Thornton	.. 0	J. W. Wilson	(5 & 4) 1
B. J. Doran ..	.. 0	E. Pearse	(1 up) .. 1
P. Hanbury	(2 & 1) .. 1	F. A. Knott	.. 0
R. B. Sumerling	.. 0	H. Lebure	(4 & 2) .. 1
J. H. R. Gaffney	(3 & 1) 1	R. E. Pearse	.. 0
W. L. Mountain (Capt.)	(9 & 8) .. 1	J. E. Spiller	.. 0
		V. Bartlett ..	.. 0
F. J. R. Stoneham	(2&1) 1		

Result of Singles.—Guy's, 5 matches; Royal Wimbledon, 4 matches.

FOURSOMES

Guy's		*Royal Wimbledon*	
Weighell & Thornton	0	Hughes & Marzetti (3 & 2) ..	.. 1
Doran & Hanbury (4 & 3) ..	.. 1	Wilson & Noel	.. 0
Cann & Knott	.. ½	R. E. & E. Pearse	.. ½
Mountain & Gaffney	0	Spiller & Bartlett (2 & 1) ..	.. 1
Stoneham & Sumerling (2 & 1) ..	.. 1	Caird & Rankin	.. 0

Result of Foursomes.—Guy's, 2½ matches; Royal Wimbledon, 2½ matches.

Guy's v. Sidcup

THIS was played at Sidcup on Wednesday, July 1st, under ideal conditions. The match was halved, each side winning 4 matches.

Guy's		*Sidcup G.C.*	
H. C. A. Weighell	(6&4) 1	H. S. Allen	.. 0
M. W. Pilcher	.. 0	C. Stewart	(2 & 1) .. 1
B. J. Doran	(3 & 2) .. 1	W. P. Taylor	.. 0
P. Hanbury ..	.. 0	H. L. Marsterson (1 up) ..	.. 1
P. H. Lomax	(Capt.) .. 0	W. C. Willan	(2 & 1) 1
R. B. Sumerling	(6 & 5) 1	T. Sperring	.. 0
J. A. T. Rowlett	.. 0	B. D. Beeston	(5 & 4) 1
F. J. R. Stoneham (2 & 1)	.. 1	S. Chidley ..	.. 0

Hospital Information, etc.

Pass List

LONDON UNIVERSITY.
THIRD EXAMINATION IN DENTAL SURGERY.
PART II.
June, 1931.

A. E. Fisher
G. B. Hunter

L.D.S., R.C.S.
FIRST PROFESSIONAL EXAMINATION.
May, 1931.
PART I.
Dental Mechanics.

J. M. Alexander
V. H. Bowles
H. L. P. Coetzer
K. E. Lawrence
E. Matthews
L. Merrill

F. I. S. Copley
H. Cowen
W. D. A. Denney
H. G. Earnshaw
R. E. C. Farrant
J. H. G. Fensom
E. J. Freeman
J. W. Hallam
R. G. V. Houlson
W. E. Morton
W. E. Nelson
A. Pryor
H. Stewart
M. Taralrud
B. G. F. Turner
E. S. Venning
D. M. Wilson

PART II.

Dental Metallurgy.

F. N. Baker
V. H. Bowles
H. Burch
J. C. Carr
R. Chartier
E. O. Clough
J. K. Donald
G. D. Fleetwood
T. G. Humby
C. H. James
E. C. Jenet
R. S. Martin
K. Morris
H. G. Poyton
D. T. M. Robertson Ritchie
D. P. Walther
H. W. Westoby

PART IIIa.

Anatomy and Physiology.

M. Bledin
T. E. Carr
H. L. P. Coetzer
R. J. Cowling
K. E. J. Fletcher
A. G. Heberlein
J. H. Kendall
J. B. Knight
W. J. Littleton
G. D. Lloyd
B. Machado
E. J. Parks
P. K. Perren
E. E. H. Sampson
A. State
F. Stevens
J. L. Thompson
S. N. Tinkler
H. W. Westoby
D. M. Wilson

PART IIIb.

Dental Anatomy and Physiology.

G. W. B. Bateman
L. G. Blackham
C. K. Brown
J. H. Chignell
H. A. M. Ching
J. K. Donald
R. J. Eustace
A. I. G. Garnett
H. Gibbs
S. S. Gill
H. Kanaar
B. Law
C. C. R. Mailer
E. Matthews
H. J. Redman
S. P. Saunders

Papers by Guy's Men

H. W. Barber. Sarcoid. *Proc. R.S.M.*, 1931, xxiv, 1021.

E. Biddle and W. P. Grieve. Cutis verticis gyrata. *Proc. R.S.M.*, 1931, xxiv, 1011.

C. F. Brockington. Diphtheric hypopiesia. *Lancet*, 1931, i, 1387.

L. W. Cann and S. de Nevasquez. Relative values of Kahn and Wassermann reaction based on survey of 175 clinical cases and tests upon 5,000 sera. *Brit. Jour. of V.D.*, 1931, vii, 105.

H. Carlill. Fröhlich's syndrome and hæmophilia. *Proc. R.S.M.*, 1931, xxiv, 1050.

F. N. Doubleday. Some notes on English dentistry in 18th and early 19th centuries (abstract). *Proc. R.S.M.*, 1931, xxiv, 1067.

A. H. Douthwaite. Rat-bite fever. *Clin. J.*, 1931, lx, 306.

L. Forman. (?) Bullous lupus erythematosus. *Proc. R.S.M.*, 1931, xxiv, 1020.

R. A. Greeves. (1) Proptosis; (2) Krukenberg's spindles; (3) Retinal moles; (4) and (5) Two cases of macular degeneration. *Proc. R.S.M.*, 1931, xxiv, 1041, 1042.

G. T. Hankey. Case of unsuccessful replantation. *Proc. R.S.M.*, 1931, xxiv, 1101.

T. B. Layton. Influence of health insurance on hospital practice. *Lancet*, 1931, ii, 35.

E. G. Little. (1) Leimyoma cutis; (2) Trichophytide; (3) Specimen of left lower limb from case of sclerodermia (shown at meeting, January 15, 1931). *Proc. R.S.M.*, 1931, xxiv, 1021.

W. A. Mill. (1) Swelling on right vocal cord; (2) Pachydermia laryngitis; (3) Syphilitic laryngitis. *Proc.* R.S.M., 1931, xxiv, 1037.

W. M. Mollison. Acute streptococcal infection of throat. *J. Laryng. and Otol.*, 1931, xlvi, 466.

A. A. Osman. Importance of sugar in diet of school-child. *Proc. R.S.M.*, 1931, xxiv, 1103.

J. L. Payne. Case of replantation and result after 12 years. *Proc. R.S.M.*, 1931, xxiv, 1099.

E. A. Peters. Syphiloma of larynx; treatment by intravenous injection of arsenobillon. *Proc. R.S.M.*, 1931, xxiv, 1038.

M. A. Rushton. Condition of teeth in a case of hyperparathyroidism. *Dent. Rec.*, 1931, li, 342.

A. E. Sawday. Phimosis and circumcision. *B.M.J.*, 1931, ii, 14.

C. Worster Drought. (1) Muscular dystrophy of pseudo-hypertrophic type at age of 45; (2) Dystoma musculorum deformans. *Proc. R.S.M.*, 1931, xxiv, 1059.

Change of Address

I. S. Spain, L.D.S., R.C.S. (Eng.), 41, All Saints' Green, Norwich.

Marriage

TOWNSEND—DALTRY.—On June 2nd, 1931, at St. Leonard's Church, Woore, Salop, by the Right Reverend Bishop Abraham, Charles Geoffrey Townsend, M.A., M.B., only son of Mr. and Mrs. C. K. Townsend, of Stoke Bishop, Bristol, and Alice Margaret, daughter of Rev. Sidney J. Daltry, M.A., F.R.G.S., Vicar of Woore, and the late Mrs. Daltry, of Lostwithiel, Cornwall.

EDS. { P. V. R. / J. S. B.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

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PASSIM

"THIS week, children," said Grandmama, "I want to tell you a story, not only amusing, but containing a high moral interest.

"There was once upon a time a keen student, whose only disadvantage was his total lack of means or money. Every examination for which he entered he passed with full marks, every patient whom he examined adored him; in fact, to put it briefly, he was a *good thing*. Now, when the time came, he qualified with honours in every subject *and* a recommendation in Public Health and Forensic Medicine, so that you can see what a very intellectual person he was. (*What is Public Health*? My dear, don't you know that? It is, briefly, the knowledge in detail of how to build a hospital 20 miles from any water, on a southern slope and a sandy subsoil, for a colony of cretins, and what to do if an outbreak of plague occurs.)

"Well, well, to return to our story. This student, an intensely good young man, as you may well imagine, decided that he would like to do House jobs at the hospital where he had trained, and that, my dears, was Guy's. Now, I do not expect that you know what they are. No, I thought not. Well, for one thing, they are always subject to the approval of the House Committee (but it apparently is a very tolerant crowd), and, for another, they are not all they seem. No, Sir!

"Now the H.C. thought that it would be awfully nice to have this student as a Resident. (You don't even know what that is? Goodness gracious! Well, it is like this. One can live and enjoy oneself, one can live, one can barely live, one can exist, *and* one can be a Resident.) He wanted to be a Resident, so that was all right, because, you see, it is not quite the same as Devil's Island—one need not become a Resident unless one wants to; they can't make one do it. So he became a Resident, and the H.C. was very pleased, because of the recommendation in Public Health and Forensic Medicine and the glory it would bring to the Hospital; and he was very pleased because he thought that now he was a doctor on the staff of a Big London Hospital he was All Right. No thought of making money entered his head, which, dears, was just as well, as he was thus spared a disappointment. He did it purely for the honour and glory, and so that he could have behind him the reputation of an old Guy's man.

"Now, after two or three years spent in being Clinical, A.H.S.,O.P.O. and H.S., he thought that the time was ripe for him to leave the nest and strike out into the cold and inhospitable world. He applied, therefore, to join the staff of a hospital in the north of England. The H.C. of this institution asked him for his testimonials; he produced them and they were very satisfactory. They then, as is the cautious way of those about to engage a housemaid or a house surgeon, asked him to present himself at a stated time for an interview. He was charmed to meet them; they, however, regarded him rather as a pig in a poke. One thought he was a bit too fat, another thought him too young, another did not like his tie.

"But the main objection came from the Chairman of the Board, 'Gentlemen,' he said, 'I do not wish to be unkind, but I do not think that this man will be suitable. We want a house surgeon of some experience, and this man comes from Guy's Hospital, which, I believe, is a large mental hospital in South London, where his experience of surgical work must have been very small.'

"Children dear, can you beat that? What is more, my dear little pets, it is a True Story."

THE medical student is notorious for many things, but this notoriety is not always justified. We are moved to this outburst of patriotism by the receipt of a letter a few days ago in which the writer complained of "the deplorable taste" which allowed such a thing as an archway of femurs (or should it be femora?) at the wedding recently of a prominent Guy's man. How the good, solid British public does dislike anything in the shape of novelty, especially when it assumes so grim a form!

We wonder if the writer of this letter has ever heard of the Roman custom of the skeleton at the feast. Yes, undoubtedly *memento mori* is deplorable taste.

Is it worse, however, to indulge in this amusing, if somewhat sardonic, form of display rather than the usual crowd of bridesmaids, ethereal in Botticelli-cum-Paquin gowns, carrying white lilies and rosy with Pol Roger 1912? Such sentiment as inspires elderly women to "Isn't he *too* sweet!" and "My dear, *too, too* divine," over a stuffy and slightly adenoidal page in blue velvet surely is more reprehensible than the grim humour of the dissecting-room.

What an uncomfortable phrase *memento mori* is, to be sure. We wonder if that is the reason the public finds it so deplorable.

▭

DESPITE the unkindness of the weather, good cheer was the keynote of a very pretty ceremony which took place at Christchurch, Lancaster Gate, on Friday, July 17th, on the occasion of the marriage of Mr. N. L. Eckhoff and Miss Audrey Allison, and it was nice to see at the reception afterwards so many people connected with Guy's congratulating the bridegroom on his good fortune.

Mr. Eckhoff, who has grown bald—though, we are bound to admit, prematurely—in the period of celibacy, had for almost two years enjoyed the distinction of being the oldest inhabitant of the College, where the merry clicking of his typewriter will be sorely missed. We wish him the best of luck in the Matrimonial Stakes.

▭

APPOINTMENTS

THE following appointments and re-appointments have been made by the Court of Committees on the recommendation of the School Council:—

Tuberculosis Officer—

Dr. Geoffrey Marshall, M.D., F.R.C.P., reappointment for one year.

Instructor of Patients with Defective Speech—

Mr. H. St. John Rumsey, M.A., reappointed for one year.

Senior Assistant Bacteriologist—

Mr. L. W. Cann, M.B., B.S., reappointment for one year.

Anæsthetist to Bright Ward—

Mr. E. A. Scott, M.R.C.S., L.R.C.P., reappointment for one year.

Resident Medical Officer to Bright Ward—

Mr. P. V. Reading, M.B., B.S., appointment for one year.

Assistant Anæsthetists to the Hospital—

Mr. P. M. F. Bishop, B.A., M.R.C.S., L.R.C.P., appointment for two years.

Mr. W. J. Ferguson, M.B., B.S., appointment for two years.

Mr. R. Jarman, M.R.C.S., L.R.C.P., reappointment for one year.

Mr. B. R. Medlycott, M.B., B.S., appointment for two years.

Chief Clinical Assistant and Registrar, Actinotherapeutic Dept.—

Mr. J. F. Carter-Braine, F.R.C.S., reappointment for one year.

Chief Clinical Assistant and Registrar, Neurological Dept.—

Mr. D. Denny-Brown, M.B., Ch.B., M.R.C.P., appointment for two years.

Chief Clinical Assistant and Registrar, Ear, Nose and Throat Dept.—

Mr. R. J. Cann, M.S., reappointment for one year.

Mr. M. Sorsby, M.D. (to Mr. Mollison), reappointment for one year.

Chief Clinical Assistant and Registrar, Ophthalmic Dept.—

Mr. M. Shaw, M.R.C.S., L.R.C.P., reappointment for one year.

Mr. P. M. Moffatt, M.B., B.S., D.P.H., appointment for two years.

Chief Clinical Assistant and Registrar, Dermatological Dept.—

Mr. L. Forman, M.D., M.R.C.P., reappointment for one year.

Chief Clinical Assistant and Registrar, Department for Psychological Medicine—

Mr. C. P. Blacker, B.M., B.Ch., M.R.C.P., reappointment for one year.

Chief Clinical Assistant and Registrar, Orthopædic Dept.—

Mr. A. T. Fripp, F.R.C.S., reappointment for one year.

Chief Clinical Assistant and Registrar to Medical Out-Patients—

Mr. O. Plowright, M.R.C.S., L.R.C.P., appointment for two years.

Hæmatologist to the Hospital—

Mr. F. A. Knott, M.D., M.R.C.P., D.P.H., reappointment for one year.

Director of the V.D. Dept.—
Mr. V. E. Lloyd, M.B., B.S., reappointment for one year.
Assistant Director (Female) of the V.D. Dept.—
Miss M. Rawlins, M.B., B.S., reappointment for one year.
Medical Officers (Male) to V.D. Dept.—
Mr. N. L. Lloyd, M.B., B.S., reappointment for one year.
Mr. S. Shone, M.B., B.S., appointment for one year.
Medical Officers (Female) to V.D. Dept.—
Mrs. D. K. Brown, M.B., B.S., reappointment for one year.
Miss M. R. Levack, M.B., Ch.B., reappointment for one year.
Miss V. I. Russell, M.D., reappointment for one year.
Dental Officer to Salomons Centre—
Mr. E. R. Bailey, M.R.C.S., L.R.C.P., L.D.S., reappointment for one year.
Dental Anæsthetist to Salomons Centre—
Mr. A. D. Marston, M.R.C.S., L.R.C.P., L.D.S., reappointment for one year.

THE following appointments and reappointments have been made by the School Council for the period commencing October 1st, 1931 :—

Surgical Registrars—
Mr. R. C. Brock, F.R.C.S., appointment for two years.
Mr. A. Simpson-Smith, M.A., F.R.C.S., appointment for two years.
Mr. D. W. C. Northfield, F.R.C.S., reappointment for one year.
Mr. B. G. Scholefield, D.M., F.R.C.S., reappointment for one year.
Medical Registrars—
Mr. R. S. Bruce Pearson, B.M., B.Ch., appointment for two years.
Mr. R. L. Waterfield, L.R.C.P., M.R.C.S., appointment for two years.
Mr. E. C. Warner, M.D., M.R.C.P., reappointment for one year.
Obstetric and Gynæcological Registrar—
Mr. J. B. Blaikley, L.R.C.P., M.R.C.S., appointment for two years.
Clinical Tutor in Charge of the Preliminary Clinical Period—
Mr. E. R. Boland, M.R.C.P., reappointment for one year.
Anderson Demonstrator of Clinical Chemistry—
Mr. G. H. Oriel, M.D., reappointment for one year.
Demonstrator of Pathology, with Charge of Clinical Laboratory—
Dr. F. A. Knott, M.D., reappointment for one year.
Demonstrator of Pathology, part-time—
Mr. J. W. Shackle, L.R.C.P., M.R.C.S., reappointment for one year.
Demonstrator of Physiology, whole-time—
Mr. B. M. F. Bishop, L.R.C.P., M.R.C.S., appointment for two years.
Demonstrator of Physiology, part-time, and Demonstrator of Pharmacology, part-time—
Mr. J. M. Lees, B.M., B.Ch., appointment for two years.
Demonstrator of Physiology, part-time—
Mr. N. E. Pitt, M.B., B.S., appointment for two years.
Demonstrator of Anatomy, whole-time—
Mr. N. L. Eckhoff, M.S., F.R.C.S., appointment for two years.
Mr. W. J. Ferguson, M.B., B.S., appointment for two years.
Demonstrator of Chemistry, whole-time—
Mr. W. M. Colles, B.Sc., reappointment for one year.
Mr. E. Matthews, M.Sc., reappointment for one year.
Demonstrator of Chemistry, part-time—
Mr. L. A. Elson, B.Sc., reappointment for one year.
Mr. J. D. Johnson, B.Sc., reappointment for one year.

Dental Tutor and Supervisor—
Mr. H. H. Kenshole, L.R.C.P., M.R.C.S., L.D.S., reappointment for one year.
Registrars in the Dental Department for Children—
Mr. R. Cutler, L.R.C.P., M.R.C.S., L.D.S., reappointment for one year.
Mr. R. E. Rix, L.R.C.P., M.R.C.S., L.D.S., reappointment for one year.
Assistant Anæsthetists to the Dental School—
Mr. N. E. Pitt, M.B., B.S., appointment for one year.
Mr. E. R. Bailey, L.R.C.P., M.R.C.S., L.D.S., reappointment for one year.
Mr. R. Cutler, L.R.C.P., M.R.C.S., L.D.S., reappointment for one year.
Mr. R. Jarman, L.R.C.P., M.R.C.S., reappointment for one year.
Mr. R. E. Rix, L.R.C.P., M.R.C.S., L.D.S., reappointment for one year.
Mr. E. R. Boland, M.R.C.P., reappointment for one year.
Mr. B. R. Medlycott, M.B., B.S., reappointment for one year.
Demonstrators of Dental Prosthetics—
Mr. D. S. Clogg, L.D.S., reappointment for one year.

Mr. W. D. P. Evans, L.D.S., reappointment for one year.
Mr. M. A. Rushton, M.A., L.D.S., reappointment for one year.
Mr. G. G. T. Tregarthen, L.D.S., reappointment for one year.

Demonstrators of Operative Dental Surgery :—
Morning Attendance—
Mr. J. A. C. Hunter, L.D.S., reappointment for one year.
Mr. F. A. Nicolai, L.D.S., reappointment for one year.
Mr. T. T. Oliver, L.D.S., reappointment for one year.
Mr. C. L. Stevens, L.D.S., reappointment for one year.
Mr. F. S. Warner, L.R.C.P., M.R.C.S., L.D.S., reappointment for one year.
Mr. J. W. Mansie, L.D.S., appointment for one year.

Afternoon Attendance—
Mr. K. S. Keele, M.A., L.R.C.P., M.R.C.S., L.D.S., reappointment for one year.

Demonstrator of Dental Bacteriology—
Mr. C. S. Henderson, L.D.S., reappointment for one year.

Asst. Curator of the Dental Section of the Gordon Museum—
Mr. F. S. Warner, L.R.C.P., M.R.C.S., L.D.S., reappointment for one year.

Deformities of the Hand

By Grant Massie, Esq., M.S., F.R.C.S.

GENTLEMEN,—The subject before us is deformities of the hand. Time will not permit more than a rapid survey of those commonly occurring in clinical practice. With regard to those deformities caused by peripheral nerve injuries with which I propose to conclude, I am concerned to-day more with the method of their production than with their diagnosis and treatment. The first two conditions to which I wish to draw your attention are congenital in origin ; the remainder are acquired.

CONGENITAL CONTRACTION OF THE FINGERS

The most common variety of congenital contraction and one which may be hereditary, is that affecting the little finger of one or both hands. The ring finger may also be affected. The flexion deformity is most marked at the proximal interphalangeal joint, and extension is prevented by the shortening of the soft parts on the flexor surface. Manipulation and splinting offer a reasonable prospect of cure if undertaken early. In later life the deformity is usually intractable.

SYNDACTYLISM

Syndactylism is due to the arrest of development before differentiation of the fingers has taken place. The thumb is but rarely involved, and the condition is often hereditary. In the most common form of the deformity two or more fingers are joined by a web of skin and fibrous tissue. Occasionally the phalanges are fused together, including the nail beds of the terminal phalanges, and variations intermediate in their severity occur. The treatment of the condition is difficult, and relapse after operation is not uncommon. Simple division of the web is suitable only for the least severe cases. In the more severe, simple measures of this sort frequently fail owing to the tendency of the cut surfaces to reunite at the proximal end of the interdigital cleft. A better procedure is the placing of a pedicled flap between the fingers of the base of the cleft, the edges of the cleft being allowed to heal by granulation.

TRIGGER FINGER

(Doigt à ressort)

This condition, which, although not common, may be very painful and disabling, was first described by Nélaton in 1850. The patient, who is usually elderly, complains of a peculiar difficulty in flexing and extending one of the fingers or the thumb. In Nélaton's original case the ring finger and the thumb were affected. In some cases difficulty is experienced in extending the finger from the flexed position, and forcible extension occurs with a snap. In other cases flexion of the digit can take place up to a point beyond which it is checked ; on complete flexion the patient is sensible of a rather painful snap. In both instances the difficulty is due to a thickening of the tendon, or a narrowing of its sheath, usually in the region of the metacarpo-phalangeal joint. On examination, a hard lump may sometimes be felt in this region, and its presence may be demonstrated at operation. Immobilisation for some weeks may relieve the condition, but in most cases it is necessary to divide the tendon sheath in its long axis to relieve the constriction. The causation of these thickenings in the tendon and tendon sheath is not known.

A somewhat similar condition, described by de Quervain as stenosing fibrous teno-vaginitis, affects the tendon sheath common to the extensor pollicis brevis and abductor pollicis longus, at the point where these tendons cross the styloid process of the radius. On examination, a small sensitive swelling may be felt, and pain is felt on extending the wrist and thumb. The condition chiefly affects young women. Immediate relief follows axial division of the tendon sheath.

MALLET FINGER

In this condition the dorsal extensor expansion is torn from its attachment to the dorsal surface of the terminal phalanx. In some cases the phalanx is fractured and a flake of bone detached from its dorsal surface. The injury is nearly always due to a blow upon the terminal phalanx. The phalanx assumes a position of flexion, and the patient is powerless to extend it. In the majority of cases, treatment by fixation of the distal joint of the finger in hyperextension is productive of good results, but healing is apt to be slow and the splint should be worn for four to six weeks. Should this measure fail, operative repair of the extensor expansion should be performed.

DUPUYTREN'S CONTRACTURE

The central part of the palmar fascia, the contraction and fibrosis of which is the primary cause of this deformity, is triangular in shape, the apex being attached to the anterior annular ligament of the wrist and the base spreading out into four processes which blend with the fibrous sheaths of the four inner digits. These four processes are joined together at the base of the fingers by the superficial transverse metacarpal ligament, while prolongations of the fascia extend deeply into the palm. The ætiology of the contraction is unknown. Dupuytren himself described it as a permanent contraction of the fingers confined to males and occurring chiefly in those who work with their hands. Injury, irritation and repeated trauma are probably exciting factors, and it has been stated that the deformity is prone to occur in those who are subject to gout and rheumatism. In some cases the condition appears to be hereditary. The ring finger is usually the first to be involved, and the earliest change is the appearance of a nodule over the metacarpo-phalangeal joint. The nodular thickening gradually extends up and down and the finger is gradually drawn into the palm. The adjacent finger, become involved in the process and the skins which is attached to the fascia, is puckered into a number of elliptical curves, the concavities of which face downwards. The tendons and joints remain mobile, but extension is impossible.

When the deformity interferes with the function of the hand, the only effective treatment is operative. Complete removal of the contracted fascia through one or more longitudinal incisions should be carried out. Incomplete removal is likely to be followed by a recurrence of the deformity.

VOLKMANN'S ISCHÆMIC CONTRACTURE

This most serious disability, which was first described by von Volkmann in 1881, occurs chiefly in young subjects, and is most frequently a complication of injuries in the region of the elbow joint. The muscles of the forearm become converted into fibrous tissue, shortened and rendered adherent to each other.

The exact causation of this change has long been debated. It was formerly believed that splints or bandages, too tightly applied to the site of the fracture or injury, caused a compression of the arteries and a consequent necrosis of the muscles. It has, however, since been shown by Brooks* that the prime factor is a compression of the veins which may occur in the absence of splints and bandages. Consequent on hæmorrhage and œdema beneath the deep fascia of the forearm, the veins become compressed, and since the arterial blood pressure in the limb is at first unaffected by these changes there results a passive venous congestion of extreme degree in the parts below the site of the injury. Destruction of the capillaries precedes the necrosis of the muscles. In the later stages sensation in the fingers may be impaired or even lost, probably owing to involvement of the peripheral nerves in the fibrotic process.

The theory of venous congestion advanced by Brooks is born out by clinical findings. It is quite certain that splints and bandages play no part in the development of the ischæmic state in a proportion of the cases. Injury to the soft parts alone may, in the region of the elbow, lead to the train of events described, although in the majority of cases a fracture is present. Furthermore, it is clear that the presence of the radial pulse at the wrist is no adequate safeguard. It has been estimated that such passive congestion may in so short a time as six hours produce ischæmic changes. If the congestion is relieved before the process has advanced to any considerable extent the contracture of the muscles may be slight. In a recent case of this kind the long flexors of two fingers only were involved, but it required many months of passive stretching before recovery took place.

Severe pain after an injury to the forearm or elbow should always be taken as a warning of this

* B. Brooks, "Arch. Surg." 1922, v, 188–216.

most serious complication, and, if necessary, immediate treatment by free incision of the deep fascia should be undertaken. The hand should be examined frequently and the patient instructed to move the fingers. In the case of fractures of the lower end of the humerus, the position of full flexion and supination may in the presence of swelling lead to irreparable damage, and only by the observance of the greatest care may this be avoided. It should be added that, if the onset of ischæmia is suspected, the necessary preventive measures may entail a complete disregard for the position of the fracture.

In the typical case, in which the process has pursued its course, the forearm is hard and shrunken, the hand is flexed at the wrist, and the fingers at the interphalangeal joints. Unless the contracture is extreme, further flexion of the wrist allows the fingers to be extended. Treatment of the established contracture is best undertaken by gradual stretching of the contracted muscles, beginning with the fingers which are splinted on their flexor surfaces. When extension has been attained in the fingers, treatment on similar lines is begun on the wrist. Progress is usually slow and the ultimate prognosis is poor.

DEFORMITIES OF THE HAND CONSEQUENT ON PERIPHERAL NERVE INJURIES

A. *The Musculo-Spiral Nerve.*—The extensors of the fingers, which are innervated by the posterior interosseous branch of the musculo-spiral nerve, are virtually inserted into the bases of the proximal phalanges. The extensor expansion into which they spread receives at this point the insertion of the interossei and lumbrical muscles. These latter extend the inter-phalangeal joints. In consequence of this, it should be noted in cases of complete musculo-spiral division that, while the patient is unable to extend the wrist and metacarpo-phalangeal joints, extension of the interphalangeal joints is still possible. For this reason, too, it is unnecessary and undesirable in splinting the wrist in the position of hyperextension to continue the splint beyond the metacarpo-phalangeal joints.

The typical wrist-drop is most often the result of pressure upon the musculo-spiral nerve. Permitting the arm to hang over a hard body, such as the back of a chair, the edge of a bed or operating table, is not an infrequent cause of paresis. The disability is usually transient and, in common with other pressure palsies, the tone of the afflicted muscles is not completely lost. Among the other causes of wrist-drop to be remembered are crutch palsy and peripheral neuritis. In fractures of the middle and lower third of the humerus the nerve may be involved either primarily by laceration or contusion or secondarily by enclosure in callus.

B. *The Median Nerve.*—The nerve supplies the flexors of the wrist and fingers with the exception of the flexor carpi ulnaris and the inner part of the flexor profundus digitorum. When division occurs at the elbow, the patient is unable to pronate the hand and the full grip of the hand is lost. The little and ring fingers can be partly flexed, but the phalanges of the thumb and index can never be flexed in this lesion. The intrinsic muscles of the hand supplied by the median nerve are the opponens, the abductor and the deep head of the flexor brevis pollicis. The motor impairment which follows division of the median nerve at the wrist may easily be overlooked in a cursory examination. Loss of the movement of opposition is, however, characteristic, as is also the wasting of the thenar emmence which later ensues.

C. *The Ulnar Nerve.*—The nerve supplies in the forearm the flexor carpi ulnaris and the inner part of the flexor profundus digitorum. In the hand it innervates all the intrinsic muscles, with the exception of the outer two lumbricals and the opponens, abductor and short head of the flexor brevis pollicis. Division of the nerve at all levels paralyses the interossei and the adductor of the thumb. The volar interossei adduct the fingers while the dorsal abduct them. Acting together, however, these muscles flex the metacarpo-phalangeal joints and extend the interphalangeal joints by reason of their insertion into the dorsal extensor expansion of the fingers. The lumbricals function similarly in the latter movement, and it is the loss of this which produces the peculiar and characteristic deformity of claw-hand (*main en griffe*). Owing to the disturbance in the muscle balance, the metacarpo-phalangeal joints become hyperextended and the interphalangeal joints flexed. Since the derangement of muscle balance is less severe in the case of the index and middle fingers, whose lumbricals are supplied by the median nerve, the deformity in the case of these fingers is less marked. The loss of abduction and adduction of the fingers in ulnar paralysis is difficult to elicit except in the case of the little finger, since these movements to some degree are governed by the flexors and extensors of the wrist. Apart from the wasting which is particularly evident in the first interosseous space, inability to adduct the little finger is the only certain clinical sign of interosseous paralysis. The flexion deformity of the terminal interphalangeal joints is caused by the unopposed overaction of the long flexors, and when these are in part paralysed, as when the ulnar nerve is divided above the elbow, the deformity of the hand is in consequence slightly less marked.

These Conjoint Finals

THAT kindly person, the Editor of the *Gazette*, came up to me the other day and said, " What about an article ? "

" What about it ? " said I, suspiciously, for I could guess what was coming.

" Well, we must have something to shove in the *Gazette* ; slack time of year, and so on."

" Nothing doing, Mr. Editor! " said I, firmly. " My Muse, being a modern young lady, is sitting alone, manicuring her nails and swearing."

" Why ? " asked the Editor, more out of politeness than interest.

" I have neglected her somewhat of late," I replied. " The quarterly battle with the Examining Board in England is well nigh due."

" Then write about examinations ! " said the Editor with reviving interest.

" Nothing easier, worthy Sir, but I am afraid it would be more than your life is worth to print it in your columns ! "

And there the matter ended. At least until I sat down to my work and then that fascinating but capricious wench, my Muse, came out from her corner and danced around me.

" Write, you silly pin-head, write ! Put down on paper what I tell you, you poor, wretched creature ! " And, after the manner of such women, she gave me no peace.

" All right ! " said I. " Hurry up with you and let me get on with my work ! "

. . . .

At the outset let me say that, although I am treating this matter in " lighter vein," I am treading the path of strict truth, and what I say is based on personal experience and the first-hand evidence of other victims like myself.

The first thing that strikes the candidate in the Conjoint Finals when he takes the *viva voce* part of his examinations is the atmosphere generated by the examiners. This atmosphere differs very considerably in the three branches of the examination.

First the Midwives. Their atmosphere is one of Profound Indifference. They care not who you are, what you are, why you are there, or, indeed, what happens to you. They listen to your remarks either with ponderous approval or scowling disagreement. They apparently derive no pleasure from their duty, from each other or from you. By way of humour they may hurl a bomb of pedagogic sarcasm at your head. The Profound Indifference is best shown, perhaps, by the fact that they have no ceremony of any kind to welcome you into their midst when you have succeeded in passing the examination.

How different are the Surgeons ! Their atmosphere is more difficult to describe concisely. They seem to be saying, " This is our day ! We are the salt of the earth and you are an impurity seeking admittance into our refined whiteness." They have their individual peculiarities, some of which are quite amusing in retrospect.

There is Mr. A., a large man with a drooping moustache, prominent teeth and a monocle, for example ; he greets you with a stare of intense ferocity and then asks you the age of the patient it has just been your privilege to examine. Woe unto you if you know it not ! He then listens to your discourse, the expression of his face changing with startling rapidity from ferocity to benignity. He then leads you along a path bordered with " short cases " and many pits ; it is his delight to conduct you to the brink of one of the latter and then, by forcing you to contradict yourself, to push you headlong, floundering hopelessly, into the pit itself. How he laughs at your efforts at recovery ! The bell saves you, and you stagger from his presence certain that he has ploughed you, but later you find that he has given you a pass mark for he marks well.

Like him somewhat is his colleague, Mr. B., a vast man who pretends to be bored to the uttermost limit ; he has a trick of turning his back on you, yawning prodigiously and stretching himself. This performance usually occurs just as you wish to convince him of an important fact, and therefore puts your mental processes completely out of gear ; your eloquence becomes an incoherent mumble and you feel rather lonely. If you are unlucky, you run up against Mr. Evan Ap-Evans, a small, truculent gentleman from the West. He is the only blatantly rude man on the Board ; girls leave him in tears and men with a longing to do him grievous bodily harm. He has no manners and treats you like a piece of refuse the charlady has forgotten to remove. You are an abomination in his sight, and he does not conceal the fact. Would that I had the pluck to say to him : " Sir, you accept my money, yes, you are paid by me to examine me—kindly remember your manners ? " After all, a man who is paid to do a job does it efficiently or gets the sack.

It would do no examiner harm to realise that he is the paid servant of the candidate before him and treat the unfortunate wretch accordingly. One can obtain a pass mark in seven *vivas* in surgery, drop one mark on each of the two papers

involved in the two sessions and be "ploughed." If a candidate can satisfy the examiners personally on seven separate occasions and only be at fault by such a small margin in his papers he should be given the benefit of the doubt. Any other body but the Examining Board in England would be satisfied by such a test.

The physicians treat you on the assumption that you are a gentleman, and do all that they can to put you at your ease. They help you over stony ground and seem anxious that you should succeed; they draw the best out of you and refrain from frightening you into saying your worst.

Those who are responsible for the organisation of the examination can have but a rudimentary idea, if any at all, of human physiology. I allude in particular to the fact that the candidates are bidden to attend the Examination Hall anything from 45 minutes to an hour before being ushered into their *vivas*. This period is spent with one's fellow victims in a dingy apartment totally inadequate in size and seating accommodation. Panic rushes through this room like a wind; therefore it is not a matter for profound astonishment that one undergoes a sort of acute mental atrophy as a preliminary to producing the fruits of learning. The fairer sex are even more unfortunate than their male sufferers, for they have but the passage in which to while away the time and have only two chairs, irrespective of their numbers.

On reading this through I see that there is precious little "lighter vein" about it. In fact, it is rather grim. That baggage, my Muse, has played me a trick once more. She is sleeping in her corner with a little smile upon her lips. She, at least, is satisfied.

Hygienic Principles in Relation to Ophthalmology

By H. Rosenberg

(*Concluded*)

Dietary.—Little attention has hitherto been paid to diet as a factor in certain eye conditions. However, during the late European War a considerable advancement had been made in diet as a factor in general medical diseases, and attention was attracted to the vitamine factor in food.

It was during this period that an epidemic of ophthalmia, particularly amongst children, broke out in Austria. Many theories were suggested as a causation until it was pointed out that, owing to the shortage of food, the population was living solely on maize meal and soup made from bran and vegetables. The [15]Vitamin A factor was absent from the food, and this apparently gave rise to a form of ophthalmia. By the administration of foods rich in Vitamin A this serious state of affairs was easily curable.

During the famine of 1908 in Japan thousands of children suffered from a form of ophthalmia, which was cured by eating eel fats and chicken liver. These foods, as is well known now, are rich in Vitamin A, and there can be no doubt that the two forms of ophthalmia were identical in their causation.

Goldenburg[14] denies the tubercular theory of phlyctenulosis and maintains that it is due probably to some deficiency in the diet. He examined this disease in a series of 287 children and found that, by altering the diet, he could control the incidence of the disease. He also commented on the fact that phlyctenulosis was a much rarer condition to-day than formerly, and this, he claims, is due to better living conditions and to correction of the aberration in the diet.

A very interesting condition, but one which is not well recognised, is found in the nervous "hypotonic" type of child. These children are brought to the physician for one or all of the following symptoms: irritability, nervousness, loss of weight, headaches and eye-strain. They are often diagnosed as cases of hypotonia or cases of "glycopenia," a much-abused word. That a state of general hypotonia exists is self-evident. Now all degrees of this general laxity of muscles may be found.

A hypothetical case then presents itself of a child complaining of eye-strain without an obvious cause. If the history is gone into thoroughly it will often be found that the carbohydrate intake for this patient is hopelessly inadequate. The muscles may likewise suffer. Therefore if, instead of inflicting upon this type of child the various restrictions against reading, etc., or prescribing needless glasses, a proper diet is given, the eye-strain, with the accompanying headaches, will soon disappear.

Case.—T. E., æt. 9, male, December 15th, 1930. Complained of "seeing double," has had bilious attacks, frontal headaches, a week before attendance at Out-patients. Previous illnesses, nil; always been "nervy."

Examination : Thin and pale ; appears to lack energy.

Heart, chest, urine, C.N.S.

December 19th, 1930. Ophthalmic report : " No diplopia elicited with ordinary tests with red and green lights. Media and fundi normal. Slight hypermetropia."

Treatment : Glucose, four times a day. To be in bed at 8 p.m.

January 19th, 1931. Vision better. No headaches.

March 16th, 1931. Great improvement in child. Putting on weight and sleeps well.

May 11th, 1931. He has improved so much that mother says " he is like a different child."

IN ADULTS

In adults we are concerned not only with the individual, but also with those circumstances which arise and which have far-reaching results on the entire human race. Therefore let us consider chiefly the effects which ophthalmic hygiene will bring into the industrial, the social and economic states that exist.

Industrial Injuries.—Injuries to the eye are common—too common—in many factories and mines, mainly through neglect of prophylactic precautions but also, to a lesser extent, through the incompetence to recognise and to treat correctly minor eye ailments. Thousands of pounds and many weeks of labour are lost in consequence.

The following table,[16] taken from a Staffordshire mine, will help to remind us of the evils of neglect :—

Number of workmen ..	45,000
Number of claims ..	3,203
Number of eye claims ..	163, or 5 per cent.
Total cost	£8,286 and 64 weeks of labour lost.

The 163 cases are divided into :—

1. Cases returning to work immediately.
2. Cases of serious injury necessitating immediate expert treatment.
3. Cases of comparatively trivial injury followed by nystagmus.
4. Cases of slight injury, owing to neglect, serious permanent injury to the eye.

Many of these cases occurred from foreign bodies being left in the cornea seven to ten days, and septic ulcers of the cornea with hypopyon resulted.

Colles states : " Goggles have saved hundreds of eyes. Thousands have been lost for want of them." That this simple hygienic principle is of the utmost importance is born out by the following figures in one factory :—[18]

1924 (no protective goggles)—119 eye injuries per 100 workmen ; 20 eyes totally lost.
1925 (protective goggles)—60 eye injuries per 100 workmen ; 10 eyes totally lost.
1926 (protective goggles)—21 eye injuries per 100 workmen ; 1 eye totally lost.
1927 (protective goggles)—3 eye injuries per 100 workmen ; 1 eye totally lost.

When the appalling results in 1924 are compared with the results in 1927 there can be no doubt left in our minds of the importance of goggles in industries where pieces of steel or particles of dust are being thrown off.

In the artificial silk industry,[17] which has become a very active component of modern industry, products of sulphuric acid fumes tend to cause a form of conjunctivitis and, in severe cases, a superficial keratitis.

The lesions clear rapidly on correct treatment, which is to restrict sufferers from entering the workrooms. It is of more importance, however, to endeavour to better the ventilation and, as much as possible, to try to exclude the irritating fumes by means of efficient flues.

Venereal Disease.—Gonorrhœa and syphilis are accountable for more blindness than is any other single infection or degeneration of the eyes. The eye, in the adult, can be infected by the gonococcus through the agency of soiled fingers, handkerchiefs, towels, linen, etc.

The infection is an acute and intense one, leading—in untreated cases—to loss of the eye through perforation of the cornea within four to five days. If one eye alone is infected the other eye must be protected carefully. An excellent method of protecting the unaffected eye is by means of the Buller's shield.

In spite of active treatment, only 50 per cent. of eyes recover completely, so intense is the infection. The treatment must then be primarily one of personal hygiene. Patients suffering from gonorrhœa must be warned of the danger they run, and must be impressed of the importance of keeping fingers and soiled linens as far as possible from the eyes.

Active anti-gonorrhœal treatment must, of course, be carried out under the supervision of a venereologist. Of the large proportion of cases of inflammation within the eyes—irido-cyclitis,uveitis and optic atrophy—over 11 per cent. are caused primarily by congenital syphilis.

An examination of 3,300[18] blind people showed that 31.43 per cent. had some lesion due to syphilis in the form of interstitial keratitis, iritis, uveitis or optic atrophy.

The great majority of these cases had other syphilitic stigmata, either Hutchinsonian teeth,

deafness, evidence of bony and joint disease and a bad family history.

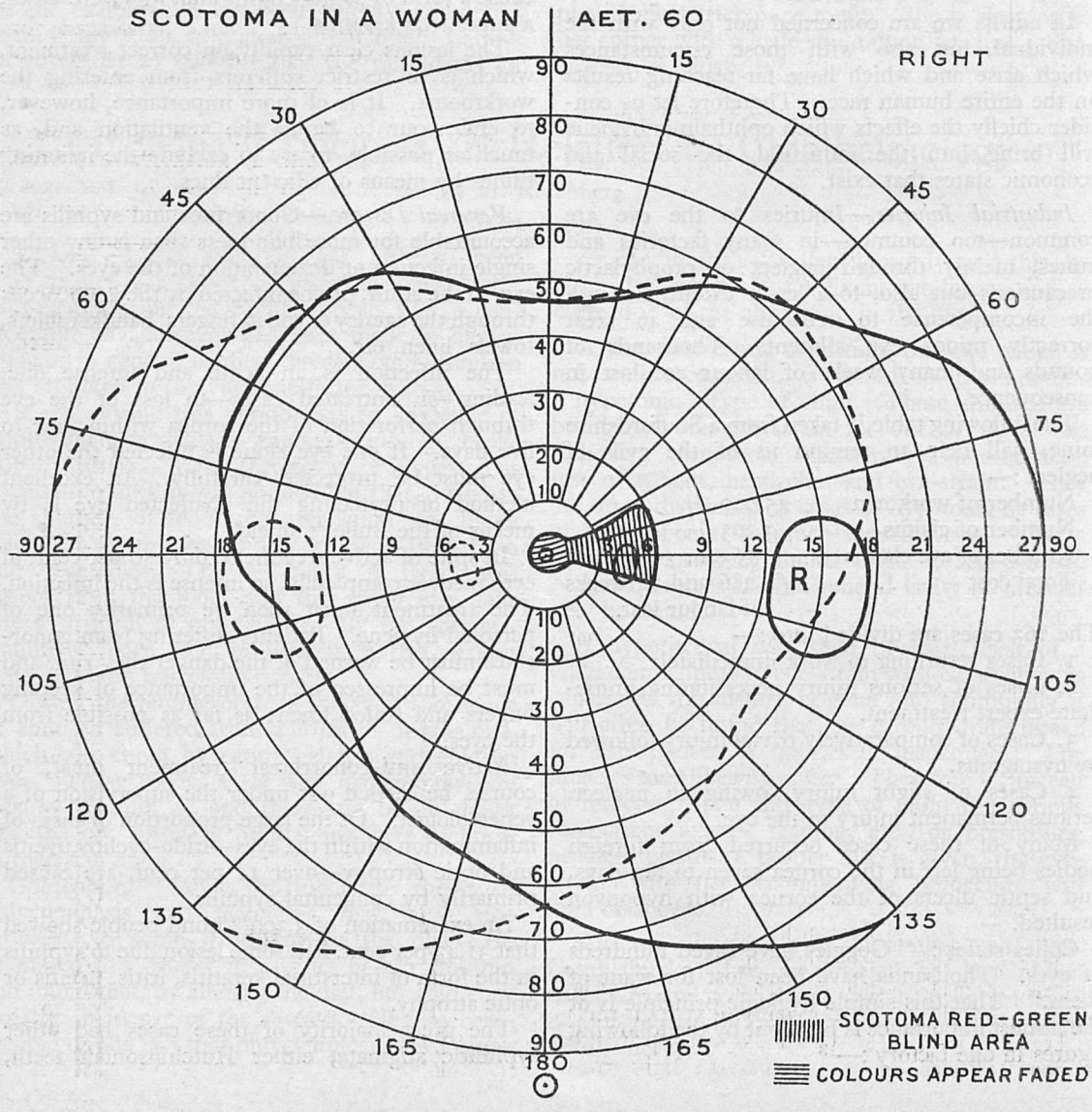
Energetic general anti-syphilitic treatment in the early stages of the disease would certainly have limited, and may even have stayed, the progress of this devastating disease. Should the medical attendant have any doubts whatever, a blood test should always be carried out.

Alcohol,[21] *Tobacco*.—That alcohol and tobacco both have deleterious effects on the eye can no longer be disputed.

Dodge and Benedict[19] studied the effect of alcohol on the " eye-closing reflex " in six normal men. The eye-closing reflex is an involuntary movement which occurs when some local danger threatens the eye.

The dose of 30 c.c. of alcohol retarded the reflex speed by 5.9 per cent.; it decreased the extent of the eyelid movement by 10.7 per cent. 45 c.c. of alcohol, which is the equivalent of about 3 oz. of whisky at proof or of nearly 2 pints of beer, still further impaired the reflex.

Guillery[20] tested the convergent movement of the eyeballs. The eyes were made to follow clearly an object moving nearer and nearer to the observer. At a certain closeness further convergence becomes impossible and fixation is lost. He found that after a dose of 40 c.c. of alcohol the degree of convergence possible was markedly impaired. The impairment took the form of weakening and of slowing of the movement.



Tobacco.—Although tobacco smokers do not frequently suffer from ocular complications, the number of cases in which the abuse of tobacco seriously impairs sight is by no means small.

As each person is an individual unto himself, it will be easily recognised that the quantity of nicotine necessary for absorption before tobacco amblyopia manifests itself varies considerably in different persons.

The earliest sign of this nicotine "toxæmia" shows itself in the increasing difficulty with which the patient is able to read type clearly. Colour blindness is complained of in a more advanced stage.

Pharmacologists are well aware that many drugs have a selective power for some particular nerves. Nicotine is one of these drugs, and we know that it attacks and damages those fibres of the optic nerve which are connected with the macula lutea in the retina.

Excessive usage of tobacco leads eventually to atrophy of these fibres, with complete loss of visual acuity. Typical cases are found amongst labourers who have been smoking about $\frac{1}{2}$ oz. of shag daily for 20 years or so.

De Schweinitz[22] demonstrated a case of a married woman, æt. 60, who complained of failing vision for some months. This loss of vision had been unaccompanied by pain or any external manifestation of ocular trouble.

When 45 years of age the patient began to smoke at least six cigars daily. It is probable that the use of the tobacco has been even greater than she implies, as her daughter freely testified that her mother smoked more than the number stated.

The ideal treatment would be to have the patient practise total abstention from tobacco. This is often very difficult, and involves so many human factors that we may have to be content with urging moderation, although admitting that this is far from the ideal. The standardisation of what is a moderate amount is well-nigh impossible, for we have to allow for the individual, for his immunity and for his general condition. A good general practitioner will know how much will be a moderate amount for his particular patient.

Special care must be paid to those whose work necessitates them to see colours clearly—such as engine drivers, pilots, etc. A tobacco amblyopia in such workers might easily lead to catastrophies involving the loss of human lives.

Lighting.—Most of the lighting in factories and business houses to-day is effected by artificial means. For this to be of maximum value it must be borne in mind that the fundamental principle of good artificial lighting is that the light must not shine in the eyes of the observer, but on the object of interest. This means that some form of shade or reflector must be attached to the source of light so that an obstacle is interposed between the source and the eye.

For reading or clerical work the light should be diffuse, producing no glare and casting no shadows over the objects to be observed.

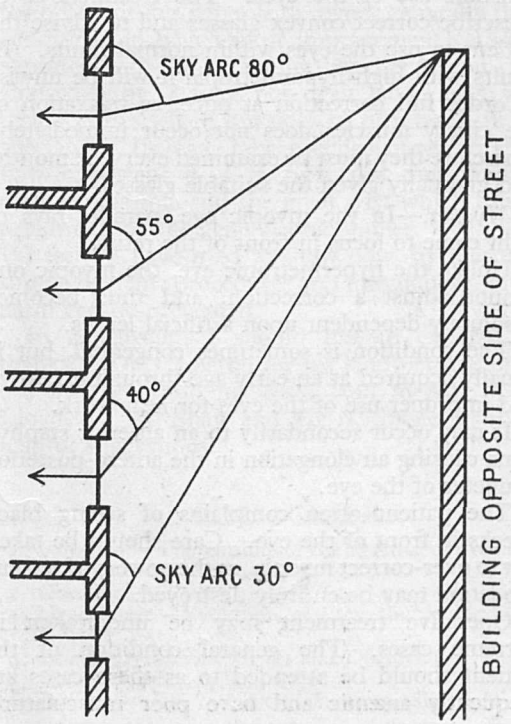
For general illumination of a room, the walls should not be in shadow, and the old-fashioned lighting from the ceiling alone is to be condemned. Rooms to be well-lit should have shaded lights on the wall as well as lights in the corners of the ceiling.

To comply with recent laws, buildings now erected must have a window area which shall not be less than 20 per cent. of the floor area.

Other conditions must also be considered, for city streets with high adjacent buildings will allow less natural light to permeate than is the case in the open country.

Rooms with a southerly exposure will have more light than those with a northerly exposure. Consequently, although by law 20 per cent. window area is required, if the room is on the north side more than this will be necessary.

If local environment does not permit the admission of a sufficient amount of light, a resort to a mechanical means for overcoming this deficiency is necessary, and prismatic glass can be used.



Prism[23] glass is simply window glass cast with horizontal prisms on the outer surface, which reflects the light from the sky into the building. The great value of this simple device has not been fully recognised by those responsible for the buildings of schools, factories, etc.

A diagram is here depicted of the mechanism of the prism windows.

Errors of Refraction.—It has been mentioned earlier in this paper that the ill-effects of errors of refraction are progressive if untreated. Therefore the conditions of hypermetropia and myopia, the common refractive errors, will be considered.

Hypermetropia.—Hypermetropia is a condition in which parallel rays of light entering the eye are brought to focus some distance behind the retina. To overcome this lack of refraction power the ciliary muscles contract, thus increasing the curvature of the lens. This constant and unnatural demand upon the ciliary muscles will in time be associated with symptoms of asthenopia.

The condition is usually congenital, and very often hereditary. The patient will, in time, complain of aching and burning sensations of the eyes, which is manifested by vascular congestion of eye tissues. Later he may complain of headache, usually frontal, and he may, in addition, have attacks of vertigo and nausea.

These symptoms are apt to become worse after reading or doing work which necessitates the constant use of the eyes. The treatment is to prescribe correct convex glasses and to advise the patient to use the eyes within normal limits. In adults with high hypermetropia it will be unwise to order full correction at once, as relaxation of the ciliary muscles does not occur immediately. Therefore they must be examined every six months and gradually given the suitable glasses.

Myopia.—In the myopic eye, parallel rays of light come to focus in front of the retina.

Unlike the hypermetropic eye, the myopic one cannot adjust a correction, and thus becomes absolutely dependent upon artificial lenses.

The condition is sometimes congenital, but is usually acquired at an early age through excessive and improper use of the eyes for near work.

It may occur secondarily to an anterior staphyloma causing an elongation in the antero-posterior diameter of the eye.

The patient often complains of seeing black specks in front of the eye. Care should be taken not to over-correct myopia, as the powers of accommodation may be entirely destroyed.

Operative treatment may be undertaken in extreme cases. The general condition of the patient should be attended to as these cases are frequently anæmic and have poor musculature. Close work should be restricted and the eyes should be tested every six months.

Strabismus.[24]—The condition of squint can be divided into two kinds :—

1. Paralytic.
2. Concomitant.

The treatment of paralytic squint may indicate the co-operation of pediatrician, surgeon or rhinologist.

The reason that diplopia is not complained of in concomitant strabismus is that the child is so young that, in a surprisingly short time, it learns to suppress the image of the squinting eye. This results, eventually, in monocular vision, and a vicious circle becomes established—faulty vision leads to a squint, which gives rise to amblyopia, and this causes a greater deviation.

Concomitant strabismus begins in infancy and is found in children between the ages of two and six years, when the power of accommodation commences to be exercised.

The treatment is to atropinise the eye and examine the eye retinoscopically to learn the true amount of deviation. In young children the power of accommodation should be temporarily paralysed with atropine. No matter how early the age, suitable glasses should be prescribed. The child will then gradually overcome the squint, and the parents must be impressed with the importance of careful supervision and periodic examination.

Infectious Diseases.—A word or two in regard to infectious eye diseases will not be out of place in this paper.

A detailed account of all the infectious diseases cannot be gone into and plays no part in a work of this nature.

Grouping the diseases together, we will find that in the vast majority of cases the patient's general health is very poor, his conditions at home are often dirty and unhygienic. Therefore we can treat these patients for :—

1. Their local condition.
2. Their general condition.

Local Treatment.—Specific drugs, serums, vaccines or antiseptics can be used, but it must be admitted that the results generally have not been particularly satisfactory, except, perhaps, in syphilitic lesions. However, no chance, no matter how remote, should be missed of endeavouring to help the sufferer.

It is useless to bandage the injured eye in a case of iritis, for the eye which is healthy will accommodate to light and the covered eye will likewise accommodate to a certain degree, and any chance of resting the affected eye is lost.

General Treatment.—Should the lesion be contagious, the patient should be isolated, he should be told of his condition and should have his own towels, linen, etc., which should not be washed in a general laundry.

Should he touch his infected eye with his fingers, he must cleanse his hands immediately. All dressings should be burnt.

If possible, good, wholesome food should be provided. Fresh air and diffuse sunlight should not be stinted. If the lesion is of the nature in which photophobia is a prominent symptom, the eyes should be protected with tinted glasses. The patient will derive much benefit if he can be removed to clean surroundings, and he should be taught clean habits.

Relation of Ophthalmology to General Medicine.—All physicians need not be ophthalmologists, but all should be acquainted with and familiar with the use of the ophthalmoscope.

The physician is frequently interested in the state of a patient's arteries. By clinical instinct or by feeling the radial arteries he hazards a guess. With the aid of the ophthalmoscope he can look and see the state of the vessels, and frequently changes are observed in the retineal vessels long before they are apparent elsewhere in the body.

In two-thirds of the cases of diabetes mellitus, eye-disturbances can be found either in :—

(*a*) Disorder of accommodation ;
(*b*) Haziness of lens.

In patients over 40 these eye symptoms are very often the first signs of pancreatic deficiency. The loss of the light reflex in locomotor ataxia, although not an early sign, is often useful in giving the clue to some obscure symptom.

In rickets, opacity of the lens is frequently found, and in infancy is an aid to the correct diagnosis.

Eye lesions in Bright's disease, measles and smallpox always make the prognosis bad and warn the physician in charge of the seriousness of the case concerned.

The majority of the headaches complained of are due to eye-strain which could be avoided. Eye-strain may also lead to various digestive disturbances (*vide supra*), from flatulence to nausea and even vomiting.

In cases of vertigo, in absence of any aural or neurological condition, a visit to an ophthalmologist and the correction of errors of refraction will usually cure this troublesome complaint. With the strict adoption of eye-hygiene many other conditions will be improved. Moderation in the consumption of alcohol and tobacco will improve the health generally. Better lighting effects will mean better housing conditions, which will do an enormous amount of work in helping to eradicate tuberculosis.

I have mentioned but a few of the several diseases in general medicine in which familiarity with ophthalmic methods would greatly assist in treatment, diagnosis and prognosis.

Let us now review some of the points raised in this paper :—

1. Many eye injuries at birth can be avoided by judicious ante-natal work.
2. Ophthalmia neonatorum is preventable. More attention must be paid to proper cleansing of the closed lids.
3. School hygiene :—
   (*a*) Correction of errors of refraction.
   (*b*) Good seating accommodation—lighting.
   (*c*) School books to be well printed.
   (*d*) Curriculum to exclude " close work."
4. Suitable diet.
5. Early treatment of congenital syphilis.
6. Workmen in mines, foundries, etc., to wear protective goggles.
7. Prompt attention to venereal disease.
8. Moderation in the intake of alcohol and tobacco.
9. Good lighting in rooms ; more use made of prismatic glass.
10. General health will improve with adoption of eye hygiene.

It may be argued that I have not dealt fully with any one particular lesion or condition, but the object of this paper is to review generally those conditions in which most improvement could be expected with the maximum benefits to mankind. Consequently, I have not dealt laboriously with technicalities which can only be of interest to the specialist. Instead, I have endeavoured to show how important it is to treat the conditions as early as possible and the great part which can be performed by the general practitioner.

Lastly, I have tried to show how, by means of simple hygienic procedures and forethought, much harm can be prevented.

In conclusion, I should like to express my thanks to Dr. Cameron for his kind permission to use material from his cases, and to Mr. V. E. Lloyd, Dr. M. Shaw and Mr. S. Shone for many helpful suggestions.

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The Debating Society

To the Editor of the GAZETTE

SIR,—I am glad that your correspondent "Proandcon" has thought fit to draw attention in your columns to the unfortunate demise of the Guy's Hospital Debating Society. Before the war this was one of the most flourishing constituent institutions of the Clubs' Union and a strong competitor with the Physical Society. It was the one society where subjects other than "shop" were, sometimes seriously, sometimes light-heartedly, debated and reviewed, and where we were at liberty to demonstrate our interests and qualities as ordinary citizens and to overcome natural shyness and inhibitions by practising the invaluable art of public speech.

Once before I ventured to inquire why no attempt was made to resuscitate the Debating Society, and was given to understand that the claims of work or amusement "after hours" were so strong in the present generation that men could not be persuaded to attend evening meetings at the hospital. In the present troubled state of the world it becomes more than ever a duty (and it should also be a pleasure) to find the time for some elementary training in clear thought and speech and that free exchange of ideas in politics and general affairs without which individual culture and responsible citizenship cannot readily thrive.

I would suggest that "Proandcon" should unearth the old minute book and call a meeting to elect officers and make arrangements for a revival of the Society in the coming winter session.

Yours, etc.,

J. A. RYLE.

Sport

Cricket

Second Round Inter-Hospitals' Cup

Guy's v. Middlesex

THIS match was played at Honor Oak on Monday, June 8th, and resulted in a win for the Hospital by 5 wickets.

Peatfield lost the toss, and Middlesex elected to bat. The wicket played easily and well all the time, but, apart from good innings by Blunt and Charlton, Middlesex did not fare particularly well. The bowling of the Hospital was very steady without being brilliant, and Whitteridge was the most successful, with 4 wickets for 51—Payne taking 3 for 61 and Davis 2 for 28. Their innings closed for 160, which seemed a fairly accessible total.

Ridsdale and Walt opened the batting, but did not give us too good a start, Walt being l b.w. to Charlton when he had scored 6, and affairs seemed very awkward when Peatfield was bowled before he had opened his account. The score board at this juncture read 2 for 26, which was soon to be followed by 3 for 31 when Ridsdale was bowled. A stand followed, the score being carried to 67, and then Doherty was bowled by a good ball from Charlton, who was bowling very well. Peatfield sensing another collapse, sent in Outfin with instructions to hit. This he did to such good effect that the hundred was raised without further loss. Starnes was then bowled, but, with Widdowson as his partner, Outfin continued his merry work, and the pair remained together until their total was passed, Outfin's contribution being 58—a very good performance at a critical period.

After their total had been passed, the game lost interest and the whole side were out for 175.

The display of the Hospital was nothing out of the ordinary, and we shall have to do much better if we want to beat St. Thomas's in the Semi-Final.

Middlesex

P. H. Nunkivell, b. Davis	16
F. Greenwood, c. Doherty, b. Whitteridge	8
N. K. Contractor, b. Davis	7
C. M. Blunt, c. Peatfield, b. Whitteridge	71
H. K. G. Nash, c. Widdowson, b. Walt	0
P. H. Charlton, c. Peatfield, b. Whitteridge	29
G. W. Davies, l.b.w., b. Payne	5
R. M. Littledale, c. Walt, b. Payne	3
R. A. McMillan, not out	3
J. Jenkings, b. Whitteridge	1
R. R. Rowan, l.b.w., b. Payne	4
Extras	13
Total	160

Bowling—Payne 3 for 61, Whitteridge, 4 for 51, Walt 1 for 10, Davis 2 for 28.

Guy's

T. D. Ridsdale, c. Littledale, b. Charlton	19
M. Walt, l.b.w., b. Charlton	6
S. R. Peatfield, b. Charlton	0
J. A. G. Starnes, b. Greenwood	29
G. V. Doherty, b. Charlton	12
R. M. Outfin, b. Charlton	58
E. V. B. Widdowson, b. Charlton	14
H. Cameron, run out	1
R. V. Payne, not out	1
E. I. Davis, b. Charlton	2
S. M. Whitteridge, c. and b. Charlton	10
Extras	23
Total	175

Guy's v. Catford Wanderers

THIS match was played at Catford on Wednesday, June 10th, and resulted in an exciting finish in which the Hospital won by 2 runs.

The weather was not very kind, and there were frequent stops for rain, and it may have been this that accounted for the low scoring.

The Hospital batted first, and could only manage to obtain a total of 66, of which Widdowson obtained top score of 18 and remained undefeated at the end. When Catford Wanderers went in they put together 45 for the loss of only 4 wickets, and the chances of the Hospital seemed remote. However, some really good bowling by Payne, well backed up by the fieldsmen, resulted in the collapse of our opponents, who were dismissed when still needing 3 runs for victory. Payne was by far the most successful bowler, taking 6 wickets at the cost of only 4 runs apiece.

Scores—Guy's, 66; Catford Wanderers, 64 (Lee, 24 not out).

Guy's

T. D. Ridsdale (run out)	11
J. C. Carr, l.b.w., b. Miller	5
S. R. Peatfield, b. Everitt	11
J. A. G. Starnes, b. Miller	0
E. V. B. Widdowson, not out	18
R. M. Outfin, b. Miller	2
H. Cameron, c. Baker, b. Everitt	4
R. V. Payne, b. Everitt	0
S. M. Whitteridge, b. Everitt	7
R. A. P. Hogbin, run out	0
E. H. Jones, b. Everitt	0
Extras	8
Total	66

Bowling—Payne, 6 for 24, Whitteridge, 1 for 8, Jones, 1 for 16, Cameron 0 for 12.

Guy's v. Bromley

THIS match was played at Bromley on Saturday, June 13th, and resulted in a draw. Bromley batted first, and on a hard, easy wicket knocked up 167 for the loss of 4 wickets, Fraser making a sound 75.

After tea, Bromley declared, and, by fairly consistent batting, the Hospital obtained 131 for the loss of 7 wickets, so that the match ended slightly in favour of Bromley. Outfin was top scorer, with a hard-hit 47.

Scores—Bromley, 167 for 4 (Fraser 75, M. Masters 43 not out); Guy's, 131 for 7.

Guy's

T. D. Ridsdale, b. Buck	14
M. Walt, c. Brown, b. Hill	14
S. R. Peatfield, b. Moore	8
J. A. G. Starnes, b. Moore	14
R. V. Payne, c. Hill, b. Moore	10
E. V. B. Widdowson, c. Brown, b. Moore	3
R. M. Outfin, c. Masters, b. Hill	47
H. D. Devan, not out	13
H. Cameron, not out	7
Extras	1
Total (for 7 wickets)	131

J. C. Carr and S. M. Whitteridge did not bat.

Bowling—Payne 2 for 47, Whitteridge 1 for 57, Devan 1 for 21, Walt 0 for 24, Cameron 0 for 7.

Rifle Club

THIS year the Rifle Club has really progressed. In spite of the fact that very few new members have joined us, we have nevertheless succeeded in carrying off the Inter-Hospitals

Challenge Cup, presented by the N.R.A., and being third in the Armitage Inter-Hospitals Cup.

In the Armitage, though we led for two stages, the final stage saw us third, 15 points behind London, the winners, with St. Mary's second.

In the Challenge Cup, however, after a very close shoot, we won, leading London by 1 point and St. Mary's by 3, with St. Thomas's and Bart.'s fourth and fifth respectively.

Scores—Guy's, 456; London, 455; St. Mary's, 453.

The Guy's team scores were as follows :—

	300 yds.	500 yds.	600 yds.	Total
C. L. Stevens ..	31	31	31	93
K. Hooper ..	30	31	31	92
A. W. Turner ..	33	29	30	92
D. W. Harvey ..	31	31	28	90
R. A. Johnson ..	32	29	28	89

It is hoped that next season we may have more members, retain the Challenge Cup, and win the Armitage, which has now evaded us for quite long enough.

In conclusion, all the members of the Club take this opportunity of thanking Mr. W. H. Trethowan for an extremely pleasant day on the occasion of the Staff match, when two Hospital teams competed against the Staff—winning and losing one. It is hoped that next year a full eight may turn up to represent the Staff.

R. A. JOHNSON,
Hon. Secretary.

Fencing

Guy's v. Polytechnic

ON Saturday, July 18th, Guy's entertained and beat the Polytechnic in a three-weapon match by 11 defeats to 16.

The foil and epée events were very even, the last fight deciding in each case. The foil went to the Hospital, the epée to the Polytechnic. With the former weapon Wright fought with energy and skill, his footwork being extremely good. Machado showed a much improved style, but was inclined to bent-arm attacks. Irish began badly and quickly lost two fights, but improved in time to win the deciding contest.

After losing his first epée bout rather easily, Pitts recovered his true form, and did not have another hit scored against him. Irish won one fight with a superb stop on his opponent's hand, but lost the next two. Wright also lost two fights.

The sabre event ended in a decisive win for Guy's by 2 defeats to 7. Irish, always at home with this weapon, fought with great dash, and was hit only once. Wright won his first two fights in convincing style, and his defeat in the third came as a surprise. Forbes employed the stop hit with success, and his one defeat was by the odd point only.

Scores.—Foil: Wright, 1 defeat; Machado, 1 defeat; Irish, 2 defeats. Epée: Pitts, 1 defeat; Irish, 2 defeats; Wright, 2 defeats. Sabre: Irish, 0 defeats; Wright, 1 defeat; Forbes, 1 defeat.

Hospital Information, etc.

Pass List

CAMBRIDGE UNIVERSITY.
Easter Term, 1931.
THIRD EXAMINATION FOR MEDICAL AND SURGICAL DEGREES.
PART I
Surgery, Midwifery and Gynæcology.
G. W. Hall Smith — E. Sharp
J. Howell — C. E. R. Wood
J. T. Irving

PART II
Medicine, Pathology and Pharmacology.
A. Eckford — L. K. Wills — J. T. Irving

OXFORD UNIVERSITY, June, 1931.
Ch.M.
B. G. Scholefield
M.B., B.Ch., SECOND EXAMINATION.
Pathology.
H. J. B. Atkins — H. G N. Cooper
Forensic Medicine and Public Health.
W. J. Cotton

SOCIETY OF APOTHECARIES OF LONDON
July, 1931, *Anatomy.*
J. C. Wallis — C. W. Williams
Physiology—C. W. Williams

Change of Address

N. L. Eckhoff, M.S., F.R.C.S., 44, North End House, Fitzjames Avenue, W.14. *Fulham* 7256.

Births

GIBBERD.—On July 7th, 1931, to Erica, wife of G. F. Gibberd—a son.

HUNT.—On July 1st, 1931, at 27, Welbeck Street, W.1, to Gwyneth (née Nicholas), wife of W. S. Hunt, M.D. (Cantab.)—a son (Michael).

Marriage

ECKHOFF—ALLISON.—On July 17th, 1931, at Christ Church, Lancaster Gate, by the Right Reverend Bishop Eden, assisted by the Reverend R. Beresford-Peirse, Nils Lovold Eckhoff, M.S., F.R.C.S., second son of the late Mr. F. M. H. Eckhoff and Mrs .Eckhoff, of Durban, to Audrey May, daughter of the late Mr. T. J. Allison, of Pietermaritzburg, Natal.

EDS. { P. V. R. / J. S. B.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

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THE WILLS LIBRARY * HOSPITAL *

PASSIM

IT is probably many years since the lay public, indeed even the medical profession, have been so healthily stimulated as by the recent developments in the diagnosis of cancer. To the public, cancer is, at the moment, a much-dreaded and mysterious scourge. To the medical profession it too frequently occurs as a disease so far advanced as to be beyond the hope of curative treatment. In its insidious onset, progressing slowly but steadily to a fatal termination, it would appear to be an affliction specially designed for those about to enjoy the fruits of their life's labours. And so the apparently brilliant discovery of the formerly unknown general practitioner of Zeist has brought a new hope into the hearts of countless sufferers, and has stimulated the medical profession to investigate thoroughly the most recent and, perhaps, the most important landmark in the history of cancer.

It is unfortunate that the press should have devoted so much space to Dr. Bendien's work. Some of the accounts may lead the public to believe that the cure of cancer has at last been discovered. On the contrary, Dr. Bendien is at present engaged only with the diagnosis of the disease. It remains to be seen whether or not he can by his method diagnose cancer at an earlier stage than has formerly been the case. If he is able to do so, the treatment of the disease will become largely curative, rather than, as it is at the moment, largely palliative. Again, should Dr. Bendien be successful, and it appears from the investigations of the Cancer Research Committee that he will be, doctors and hospitals in all parts of the world will be besieged by patients demanding that they should be investigated for cancer. No middle-aged person with a tummy-ache will be happy until he or she has had a blood test. If, and when, the serological diagnosis of cancer becomes established, a new branch of specialism will be opened, ranking equally in importance with the Wassermann Reaction in the diagnosis of syphilis.

WHEN we return to the Hospital from our annual, and only too brief, holiday, tanned by the sun, and charged with ozone from the wide, open spaces, we are struck by the unhealthy and pallid appearance of our colleagues who have been assisting in keeping the Hospital going during our absence. It seems unfortunate that, whilst during the first three years of our careers as medical students, when we are hale and hearty and unsullied by the evils of the Borough, we have regular and even more than sufficient relaxation from our toils, whereas in the succeeding three years, when we are becoming somewhat older and a little seedy, we are no longer able to take advantage of those much-needed breaks. Our holidays become an occasional week or fortnight snatched between appointments. And yet of all professions ours is the one that urges and encourages inadequate relaxation from work. But yet, perhaps, we at Guy's should be the last to grumble. Have we not a fair green sward within our gates, whereon we may bask and sleep in the sunshine, what time we wait for the physician to commence his afternoon round? Have we not also a swimming pool in which, on alternate days, we may disport our naked bodies to our heart's content? We also have a magnificent

gymnasium, lately re-decorated and re-furnished by means of a special subscription from those patronising the College Dining Room. We understand that the gymnasium is to be improved by the addition of a golf-net at an early date. And last, but by no means least, we have a squash court, where, on payment of an occasional shilling for light, we can take much manly exercise. (The light so obtained would be of greater advantage if the walls of the court were clean and white rather than, as they are at the moment, grey and dirty.) And with Honor Oak Park almost, so to speak, at our door, a casual observer might well think that we at Guy's should live in the pink of condition. No doubt it is largely because we are lazy and heedless as regards the care of our bodies that we are, between our holidays, pale, tired and anæmic.

Medical School Notice

FINAL FELLOWSHIP COURSE

September-November, 1931.

A COURSE of instruction in preparation for the Final Examination for the Fellowship of the Royal College of Surgeons of England will commence on Wednesday, September 2nd. Guy's men who wish to join the Class should send in their names to the Dean, as soon as possible.

T. B. JOHNSTON,
Dean.

Cancer of the Breast

A Clinical Lecture delivered at Guy's Hospital, July, 1931, by W. H. Ogilvie, Esq., M.S., F.R.C.S.

GENTLEMEN,—Cancer of the female breast is one of the commonest of the malignant conditions which we meet in our practice; its incidence is one-third of the total incidence of cancer in women of all ages. Moreover, because of the accessible situation of the breast and the fear with which all women rightly regard any lumps which they discover in it, we see these tumours at an earlier stage than those of any other part, a fact that on one hand gives us many opportunities for hopeful and curative treatment that occur only too rarely in other organs, and on the other presents us with problems in diagnosis of the greatest difficulty and importance. Moreover, in the breast we can study, as in a microcosm, the signs and development of cancer under almost ideal conditions; we can observe the pathological factors governing its spread and distant dissemination, and we can carry out, with a thoroughness and completeness that is, for anatomical reasons impossible in most other situations, the radical treatment that these pathological considerations demand. For all these reasons the main facts about breast cancer are familiar to the student of medicine from his earliest days of clinical study. I do not, therefore, propose to repeat to you what you already know, or what, if you do not, you can learn in a shorter time from your text-books. Yet there are so many aspects of the disease as we meet it in the out-patient department and in the wards that do not tally with text-book descriptions, and so many points in diagnosis and treatment that are still matters of controversy, that I feel an hour spent in reviewing the subject will not, at any rate as far as I am concerned, be wasted.

Any discussion of the cause of cancer is beyond the scope of a clinical lecture, and I do not propose to embark upon it. Even that more vexed question as to whether cancer is more common in the civilised races must be regarded, till more evidence is forthcoming, as an open one. With regard to cancer of the breast, this is believed to be the case, but a statistical investigation by Dolby at Cairo seems to indicate that the disease is very nearly as common among the agricultural population of Egypt who live under conditions little removed from those of primitive man, but whose illnesses are more accurately observed. Civilised women wear clothes, and it has been suggested the that pressure of tight garments produces that repeated damage to the tissues of the breast which is known in other tissues to lead to cancer. On the other hand, it may be urged that breast cancer was no more common in the days of tight-lacing than it is now, when corset-making is among the depressed industries, and that cancer occurs far more commonly than elsewhere in the upper and outer quadrant, the part that is least constricted by dress. Another factor that has been discussed is the effect of lactation. Some time ago it was

shown that a series of female mice, which bore repeated litters, but were not allowed to suckle, showed a particularly high evidence of mammary carcinoma, and it has accordingly been suggested that pregnancy which is not followed by the physiological sequel of nine months' lactation leads to aberrant proliferative changes in the breast, and in time to cancer. Here, again, we are up against the difficulty that breast cancer is proportionately as common in women who have borne no children as in those who have borne many, and in the class that feed their babies as in those that do not.

A problem of more direct and practical importance is whether there are any known pre-cancerous conditions in the breast. There have been instances recorded in which previous blows, and mammary abscesses, have been followed by a malignant growth in the same situation. They are excessively rare. A fibro-adenoma has been known to give rise to a cancer in the surrounding tissues, but so very seldom that there is no reason to urge, as some have done, that the purely local removal of these innocent tumours should give way to a more wide excision of the affected part of the breast. When, however, we come to chronic mastitis, we find a much more definite association. Cases of chronic mastitis proceeding to malignancy are observed far more frequently than can be accounted for by any chance relationship between the two conditions. Further, if the whole of every breast removed for cancer is examined microscopically it will be found that in the majority, at any rate in more than two-thirds, the changes characteristic of chronic mastitis will be found in some part. What, then, should be our attitude to chronic mastitis when we meet it? Should we recommend the prophylactic removal of all such breasts because we know that the condition may go on to malignancy? Such a policy has been urged by very eminent men, but it is hardly a practical one. Chronic mastitis is an extremely common condition, so common that I hardly like to call it a disease, and in this great army of women, the proportion who eventually develop cancer must be very small. It would be as reasonable to recommend wholesale appendicectomy in infancy to forestall the possible incidence of a fatal appendicitis in later life.

Chronic mastitis is encountered in many different forms, but I think we may recognise two main types. The first occurs in young women between 18 and 30, and is frequently unilateral. The breast is of a normal rounded outline and of firm consistency, and in its substance a small number of more solid areas can be felt, which are tender under pressure. The chief complaint is of pain, which tends to be worse at the periods, and in warm weather. This type of mastitis I take to be infective in origin, and to be similar in nature to the low-grade inflammatory processes which may attack any fibrous tissue; like them it is aggravated by conditions which increase the blood supply of the part. I do not believe that these cases ever go on to malignant changes. They are usually cured by supporting the breast by encircling bands of elasto-plast, administering iodides, and removing any sources of sepsis, such as decayed teeth or infected tonsils.

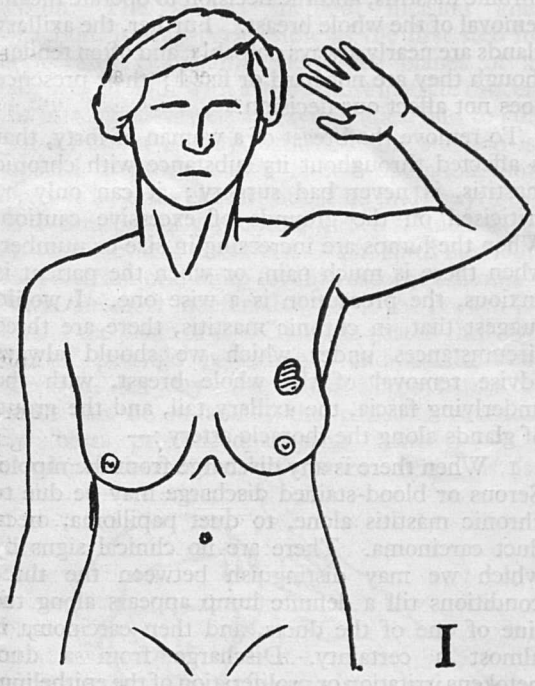


Fig. I. Carcinoma of the left breast.

The second type is usually seen in women between 40 and 50 who have small, thin, pendulous breasts. Throughout the substance of the breast are a number of firm irregularly-rounded nodules, which cannot be detected with the flat of the hand, and which can only be felt by pinching up the breast substance in the fingers, but which even then defy exact delimitation because each nodule merges into neighbouring ones. Pain is not common, but may be felt in one lump, especially after some trivial injury. The condition may be found accidentally, or the patient may come for advice because she has noticed the lump herself. This type of chronic mastitis is probably a degenerative change in a gland that has reached the term of its functional period, and is the type that may, in some instances, go on to cancer.

In discussing the attitude of the surgeon to chronic mastitis, I would ask you to remember three things. This so-called " mastitis " primarily involves the interstitial tissues of the breast, and the fibrous tissue proliferations do not in themselves become malignant, but induce malignancy in the epithelial tissues upon which they press. Again the changes are present throughout the whole breast, and if any danger signal is noted in one part, similar changes are probably occurring, though at an earlier stage, in others; therefore local excision has no place in the treatment of chronic mastitis, and the decision to operate means removal of the whole breast. Further, the axillary glands are nearly always palpable, and often tender, though they are not hard or fixed; their presence does not affect our decision.

To remove the breast of a woman of forty, that is affected throughout its substance with chronic mastitis, is never bad surgery; it can only be criticised on the grounds of excessive caution. When the lumps are increasing in size or number, when there is much pain, or when the patient is anxious, the precaution is a wise one. I would suggest that, in chronic mastitis, there are three circumstances under which we should always advise removal of the whole breast, with the underlying fascia, the axillary tail, and the group of glands along the thoracic artery :—

1. When there is any discharge from the nipple. Serous or blood-stained discharge may be due to chronic mastitis alone, to duct papilloma, or to duct carcinoma. There are no clinical signs by which we may distinguish between the three conditions till a definite lump appears along the line of one of the ducts, and then carcinoma is almost a certainty. Discharge from a duct betokens irritation or proliferation of the epithelium lining that duct, and therefore a change that is either pre-cancerous or cancerous. It should accordingly call for removal of the whole organ.

2. When a lump is present that can be felt with the flat of the hand. The lump is probably no more than a cyst, but such a cyst is in most cases one of thousands, and in each the secretions of the duct are penned up, and the epithelium unhealthy. Once more removal of the whole breast is the only safe treatment.

3. When, in association with chronic mastitis, there is any alteration in the contour or level of the breast when compared with its fellow.

In discussing the diagnosis of cancer of the breast I shall confine my remarks to the common type of spheroidal-celled carcinoma, and shall not deal with Paget's disease of the nipple or with duct carcinoma. Spheroidal-celled carcinoma is seen in three clinical types : the medullary carcinoma, the scirrhus or usual type, and the atrophic scirrhus. The clinical signs by which it manifests itself can be divided into four groups : those due to the primary growth—the presence in the breast substance of a lump which is stony hard, of irregularly rounded contour, more definitely circumscribed than a patch of mastitis, less so than a cyst or fibro-adenoma; those due to extensions from the primary growth—enlarged axillary, subclavicular or supraclavicular glands, nodules in the skin or metastases in the thorax, abdomen or bones; those due to the death of cancer cells and their replacement by fibrous

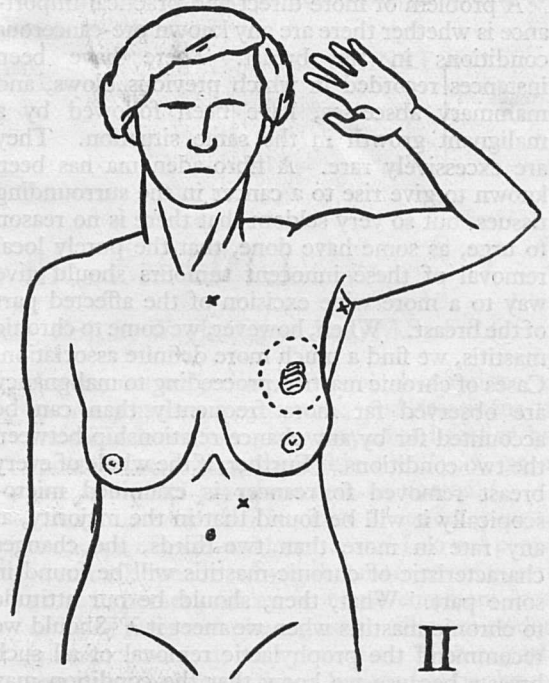


Fig. I. Angles of tri-radiate incision, and circle of minimal skin removal.

tissue—deviation of the axis of the nipple, elevation of the nipple, retraction of the nipple, local flattening of the breast contour, shrinkage of the whole breast, dimpling of the skin over the lump, fixation of the skin to the lump, fixation of the lump to the underlying fascia; and those due to the obstruction of veins or lymphatics, " pig skin," and the œdema of the chest wall or arm. In the more rapidly growing cancer or medullary carcinoma, which is usually seen in the breasts of young or lactating women, the malignant cells grow rapidly, and fibrous tissue replacement plays little part; the growth forms a rapidly increasing tumour, which pushes the remaining breast and other tissues aside. It has to be distinguished from sarcoma and from sero-cystic fibro-adenoma,

both rare conditions. The only safe treatment is that for cancer. In the more slowly growing types, diagnosis is usually a matter of extreme simplicity.

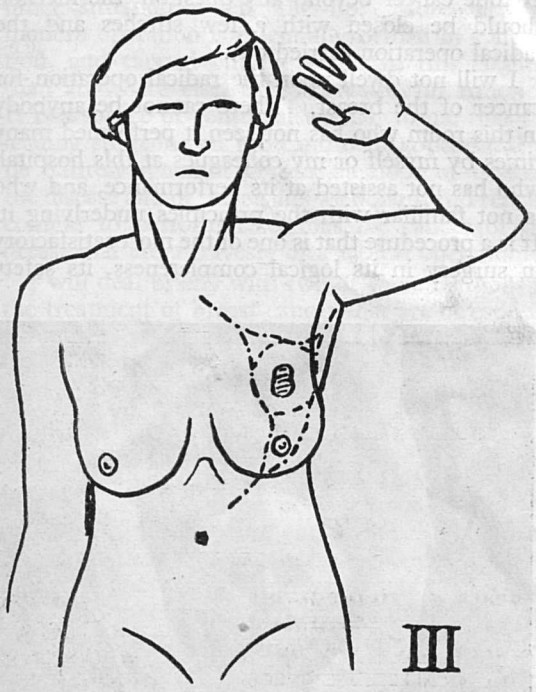


Fig. I. Skin flaps outlined.

If, however, we are to do the best by our patients, we must be prepared to diagnose carcinoma of the breast on the presence of a lump alone, before any of the other signs, which point to wider extension, have appeared. If only one single sign is present that points to cancer, cancer should be diagnosed.

Apart from acute infections, and the very rare gummatous and tuberculous abscesses which are usually betrayed by other signs of the disease, there are only four lumps in the breast that can be felt with the flat of the hand—adenomata, bruises, cysts in chronic mastitis, and carcinomata. Fibro-adenomata and the very rare epithelial adenomata occur in young women, and are very rounded, very movable lumps of transparent innocence. Blows on the breast may give rise to hard lumps that are fixed to the skin, and sometimes to a slow necrosis of the fat that mimics very closely the characters of a malignant tumour. Cysts in chronic mastitis are usually rounded and feel elastic, but if tense or deeply placed they may be very like malignant growths in the stage before fixation has appeared. It is in the diagnosis of these lumps which locally present many of the characters of a cancer, but have none of the signs due to the development of fibrous tissue or the presence of metastases, that we have to make decisions of the utmost importance to the patient and to our reputations.

Some methods of diagnosis that have been put forward by writers on the subject I would mention only to condemn. Firstly, needling. Passing a needle into a tumour will confirm or exclude the presence of a cyst, and will convey a fairly accurate impression as to the consistency of the tissues through which the needle passes; however, its apparent safety is illusory; it is as dangerous in its possibility of starting wide dissemination as is incision. The second method, incision and inspection, is only permissible as the first step in an operation; opening the tissue planes of a malignant tumour with a knife must liberate cancer cells into blood-vessels and lymphatics, and to cut open a tumour is only justified if the surgeon is prepared to proceed to a radical operation, not merely if he finds cancer, but if he finds anything but a transparently innocent process, such as a thin-walled cyst or an abscess. The third method, local resection of a lump for microscopic examination, is the most indefensible, for if the growth is a cancer the plane of dissection has passed through areas of possible permeation, and during the interval of ten days that must elapse before a verdict can be obtained, the patient's chances have been prejudiced beyond remedy. The immediate examination of frozen specimens is

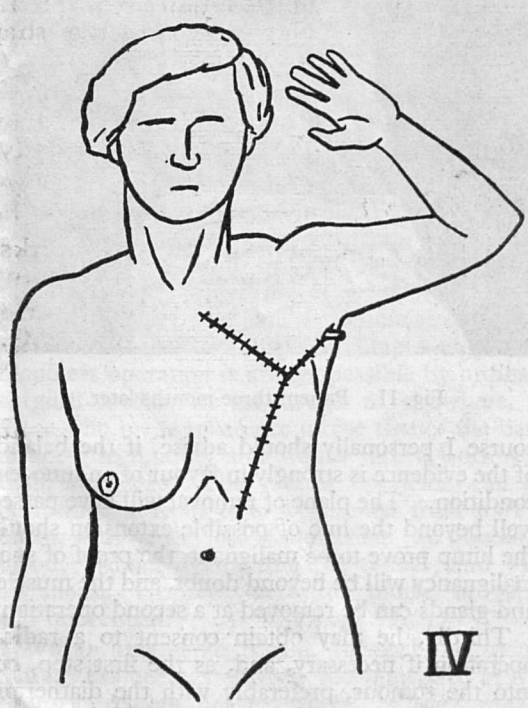


Fig. I. Operation completed.

considered valueless by most pathologists of repute and experience.

In the presence of a doubtful lump in the breast, three courses are open to the surgeon. Firstly he may wait and see. To tell the patient not to worry, but to come back if the lump gets bigger, is criminal folly. But to make a sketch and exact notes of the size and characters of the tumour, and to repeat the examination three weeks later, is often wise and scientific. In many cases, especially when there is a history of trauma, the diagnosis will be entirely clear at the second visit.

Secondly, he may excise the whole breast and submit it to microscopical section. This is the course I personally should advise, if the balance of the evidence is strongly in favour of an innocent condition. The plane of removal will have passed well beyond the line of possible extension should the lump prove to be malignant, the proof of such malignancy will be beyond doubt, and the muscles and glands can be removed at a second operation.

Thirdly, he may obtain consent to a radical operation if necessary, and, as the first step, cut into the tumour, preferably with the diathermic cutting needle. When the balance of evidence points to malignancy, but is not beyond doubt, this course appears to me to be the wisest. The decision must be made upon the appearances of the cut surface of the tumour, and, unless they exclude cancer beyond any question, the incision should be closed with a few stitches and the radical operation carried out.

I will not dwell upon the radical operation for cancer of the breast. There cannot be anybody in this room who has not seen it performed many times by myself or my colleagues at this hospital, who has not assisted at its performance, and who is not familiar with the principles underlying it. It is a procedure that is one of the most satisfactory in surgery in its logical completeness, its safety and its excellent results, not only as regards function, but as regards cure of the disease for which it is performed. When the results of the operation were examined some years ago by the Ministry of Health, it was found that the figures from a great many hospitals, including operations performed by surgeons of all degrees of skill and experience, showed 78.5 per cent. of five-year cures in cases in which the disease appeared on clinical grounds to be limited to the breast, 42.5 per cent. of five-year cures where the axillary glands were

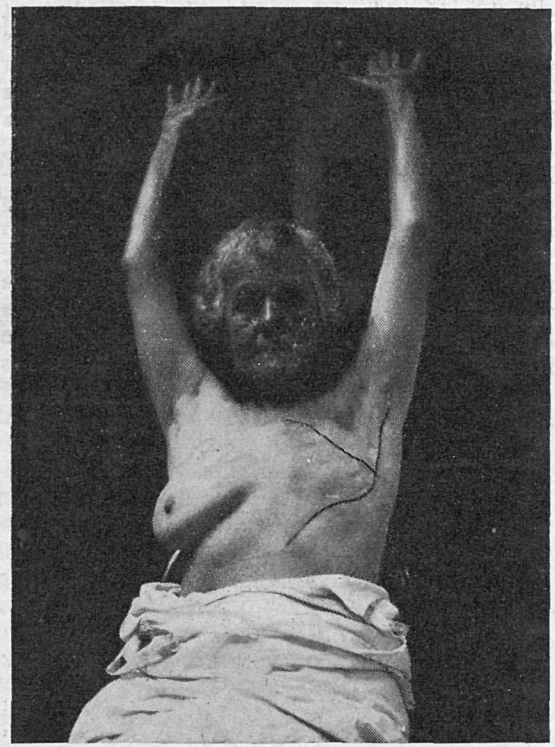


Fig. II. Patient three months later.

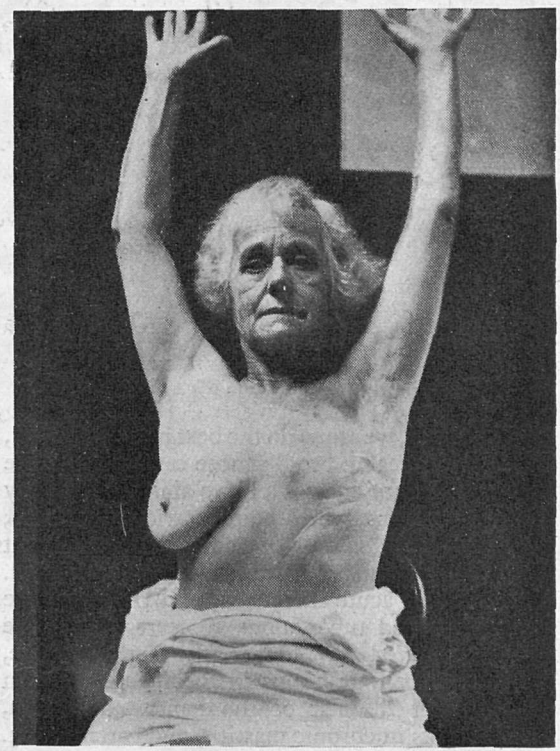


Fig. II. Patient three months later.

enlarged in addition, and 21.9 per cent. where there was fixation to other structures. Such results are imminently gratifying, and better than those obtained by any method in cancer of any other situation except the lip. Moreover, the modern operation is essentially British in conception, and carried out far better in this country than anywhere else, except possibly in America. It is a source of continual wonder to me that the leading surgeons on the Continent appear still to be entirely ignorant of our methods of treating the disease and of the results we obtain, and remain content to perform resections for cancer of the breast that are a travesty of a radical operation.

I will deal briefly with two or three methods in the treatment of breast cancer that are of especial interest to you as certain candidates for surgical examinations in the near future and possible surgeons in the years to come—methods that are new and, to a certain extent, on their trial.

Within the last five years diathermy, which was originally employed in surgery almost entirely for the mass coagulation of tissues, has been used in the form of a cutting current as an alternative to the knife. The diathermic current, as you know, is one of high voltage and of such rapid altenation that no electricity passes through tissues that are interposed between the electrodes; heat is, however, generated in these tissues by their resistance to the passage of current. If the electrodes are both large, the resistance is offered by a large mass, and the heat is distributed over a wide area. This form of application is called medical diathermy, and is used for raising the temperature of parts of the body affected by low-grade inflammatory processes, such as the joints in chronic arthritis. If one electrode is small, and the tissues in contact with it are heated by their resistance to the point of destruction, this is surgical diathermy. When the current is of extremely high voltage, the altenation very rapid—about 1½ million times a second—and the operative electrode a needle-point, the result is to produce a fine flame which cuts the tissues with the cleanness and rapidity of a knife. There is no visible charring, but the cut surface is coagulated to a depth of about one-tenth of a milimetre, sealing the smaller blood-vessels and lymphatics.

The cutting diathermic current has been used extensively for carrying out the radical operation for cancer of the breast, and many surgeons believe that this diathermic operation is greatly superior to that performed upon standard lines. They claim that the whole operation is done much more rapidly by this means, since time is not lost in the arrest of bleeding; that there is very little hæmorrhage and no appreciable shock; that the coagulation is not sufficient to interfere with the repair of the wound, while the elimination of a great number of catgut ligatures makes for better healing; and that the sealing of lymphatics in the plane of section is a safeguard against the dissemination of cancer cells.

My own judgment, after performing a certain number of operations in this way myself and watching a much greater number done by other surgeons, is unfavourable to the method. If the current used is not truly a cutting one, a considerable amount of surface coagulation of the tissues takes place, and the finished operation is a thoroughly messy piece of work. The more nearly the technique approaches to actual cutting, the less are its advantages apparent; the arc flame which coagulates only a thin film of tissues seals no more than the smallest blood vessels, and all arteries visible to the eye bleed when they are divided and must be caught by forceps and sealed with diathermy. The saving of time is not, therefore, apparent. Vessels thus sealed are said to be "coagulated," but they are always charred, and their blackened stumps must be absorbed in the process of repair. Healing is claimed to be as good after diathermic cutting as after an operation with the knife, but actually it is not; sepsis of minor or major degree is very prevalent, and the healing of the skin by first intention, using the word in the strict sense of Moynihan, unknown. I find that those surgeons whom I admire as technicians have abandoned diathermic cutting for all ordinary operations. The method has a permanent place where absolute hæmostasis is essential and difficult of attainment by ordinary means, in operation on the brain, the pharynx, and possibly the lungs, liver and rectum. In the breast it is an easy way to avoid difficulties which can be overcome in a more satisfactory manner by careful apprenticeship to surgical handicraft, but is practised at the expense of some devitalisation of the patient's tissues and a progressive deterioration in the skill of the surgeon. Rapid and almost bloodless operation is always possible by ordinary surgical means, in the breast as elsewhere, to those who make reverence of the tissues the basis of their technique, and would rather work well than hurriedly. The radical operation can be performed in from 30 to 45 minutes from start to finish, without the loss of more than two ounces of blood, without devitalising the tissues, and with no shock. Healing afterwards should be rapid and uneventful.

Within this same period, the last five years, radium has been extensively recommended in this country, though not elsewhere, as the primary method of treatment in early and operable cancer

of the breast. It may seem strange that a method which has nowhere given a percentage of five-year cures equal to those of surgery in cancer of the breast should be applied to a field where excision has given such brilliant results. But the radium worker is essentially an enthusiast, hoping always to succeed where others have failed; encouraged by the improvement obtained in hopeless breast cases, he has tried his method in earlier and more hopeful cases. The patient is attracted by the glamour of something new, and the glowing accounts of cures that she has read in her newspaper, by the prospect of avoiding the suffering of an operation, by the negligible risk, and by the avoidance of any mutilation. The cure of cancer by radium depends upon the exposure of the whole of the tissues in which cancer cells may lie, to a dose of radiation that is fatal to malignant cells and harmless to normal ones. When the cancer is of a radiosensitive type, that is, when its cells are killed by a dose of gamma radiation well below the lethal dose for normal cells, and when the area of potential malignancy is a limited one and lies in firm tissue, so that radium needles can be spaced throughout its extent with mathematical exactness, the prospects of cure are good. In the breast neither of these favourable circumstances are present. The cancer is intermediate in type between the radiosensitive undifferentiated epitheliomas of the back of the tongue and the radioresistant carcinomas of the alimentary canal; the field of potential malignancy is a very extensive one, both in area and in depth, and composed of movable muscle planes and soft fat, so that even radiation is impossible.

The figures for cases of cancer of the breast treated by radium at St. Bartholomew's Hospital, the best series reported up to the present time, were published in 1930.

The figures for the inoperable group are distinctly encouraging. If we consider the cases treated two years and more, we find that out of 17 cases, 9 are alive and 8 alive without signs of disease. The cases treated for one or two years only are, however, much less satisfactory; out of 24 cases treated, only 13 are alive, and all of these have recurrences and will eventually die of cancer. Taking the inoperable group as a whole, we find 8 out of 41 cases treated for periods varying from one to five years, or 19.5 per cent. are alive without recurrence, and have a reasonable chance of permanent survival. The figures for surgical treatment in cases of group III are 35.2 per cent. three-year survivals, and 21.9 per cent. five-year survivals, but it must be remembered that this series will include much fewer really advanced cases.

The results of radium in operable growths are, however, so bad that I think we have no right whatever to treat any woman with an early breast cancer by this means, or to allow her to accept treatment without pointing out to her the risks she is running. It is true that only 8 per cent. of the cases so treated for periods up to four years have died, but, on the other hand, 43.5 per cent. have recurred within a year, and 55 per cent. within two years of treatment. The number of cases showing recurrence at the end of the five-year period is hardly likely to be less than 75 per cent., and will probably exceed that figure. Allowing always for the fact that the operable radium cases have not been subdivided into those with and without glands, these results are considerably poorer than those obtainable by the radical operation.

It appears that radium should not be employed in cases of breast cancer belonging to Classes I and II of the classification of the Ministry of Health, unless there is some real contra-indication to operation. In cases belonging to Class III it should always be used; alleviation can be promised, and occasional cures may result in appa-

CASES TREATED 1924-1929

Total	149	Alive in 1930	122
Operable	108	" " "	100
Inoperable	41	" " "	22

ANALYSIS OF SURVIVAL RATE

	Operable			Inoperable		
	Cases treated	*Alive* 1930	*Without recurrence*	*Cases treated*	*Alive* 1930	*Without recurrence*
1924	—	—	—	1	1	—
1925	—	—	—	6	1	1
1926	3	1	1	3	3	3
1927	7	6	3	7	4	4
1928	29	26	13	11	5	0
1929	69	67	39	13	8	0

rently hopeless instances. When in such cases the glands have disappeared and the general condition of the patient has improved, but a lump still remains in the breast, a limited excision either with the knife or the diathermic needle may be advisable as an adjunct to radium treatment.

The general factors that have been discussed in connection with radium treatment apply also in large measure to deep X-rays, except that even irradiation of a large block of tissue is more easily obtainable by this means. Many cases of breast cancer have been arrested for years by deep therapy, but few, if any, have been cured. Its use, therefore, as a primary line of treatment should be limited to cases in Group III, surgery being reserved for the excision of the lumps that remain in the breast after several courses of radiation.

The greatest value of deep X-rays lies in its efficiency, when used in early and hopeful cases in conjunction with surgery, to diminish the number of recurrences. In this conjunction the following figures are available :—

Randiumhemmett, Stockholm—

Cases treated by surgery alone—
20 to 30 per cent. five-year cures.

Cases treated by surgery, with pre-operative deep X-ray only .. 37 per cent. five-year cures.

Cases treated by surgery with pre- and post-operative X-rays.. 50 per cent. five-year cures.

General Memorial Hospital, New York—

Cases treated by surgery alone—
21 per cent. three-year cures.

Cases treated by operation with pre-operative X-rays only ..33 per cent. three-year cures.

Cases treated by operation with pre- and post-operative X-rays..46 per cent. three-year cures.

Pfahler and Parry consider that their operative results have been improved by 75 to 100 per cent. by the use of X-rays. It must be mentioned here that many surgeons do not agree with these conclusions, and that they are not borne out by the Report of the Committee for the Treatment of Malignant Diseases with Radium and X-rays of the American College of Surgeons. From my own experience in cancer of the breast and elsewhere, I am firmly rooted in my confidence that in the use of deep X-ray applied by an expert as an adjuvant to wide excisions scientifically planned, we have at the present time the most hopeful weapon in the treatment of early and curable malignant disease.

I will recapitulate briefly the conclusions which I wish you to carry away from this lecture.

1. The diagnostic excision of doubtful lumps in the breast is never justified. Three courses are open to the surgeon :—

(*a*) A brief period of observation.
(*b*) Local excision of the whole breast for microscopic investigation.
(*c*) Incision of the tumour as the first step in an operation that must in most cases be completed.

2. Breast cancers in Classes I and II of the classification of the Ministry of Health should be treated by radical operation.

3. The prospect of obtaining a permanent cure by operation in a particular case will be improved by a course of X-ray therapy before and after operation.

4. Breast cancers in Class III should be treated in the first instance by radium or deep therapy. Local excision may be performed later, if it appears to be desirable.

The radical operation as performed in this country is usually associated with the name of Sampson Handley. It implies removal of the whole breast and of all the lymphatic glands below the clavicle, with a circle of skin five inches in diameter and of deep fascia at least ten inches in diameter round the growth. To allow open access to the axilla and complete removal of the fascia the sternal portion of pectoralis major and the lesser pectoral muscle are removed in their entirety, and the superficial parts of serratus magnus and the anterior rectus sheath are dissected off. All these tissues are excised in one block.

Individual differences arise with regard to the skin flaps. The chief difficulties in the operation concern the exposure of the axilla; the most common troubles afterwards, apart from those due to recurrence, are also in the axilla—pain due to pressure on the nerves or adherence of the scar to the brachial plexus, œdema of the arm due to pressure on the vein, limitation of abduction from tightness of the scar. The common incision is an elliptical one, starting at the insertion of the pectoralis major, encircling the growth, surrounding skin and nipple, and finishing as a straight line in the epigastrium. It affords excellent exposure, but may be difficult to close without undue tension, and always leaves a scar at right angles to the plane of movements of the shoulder, which is apt to be tight and adherent in the axilla even when it has been curved backwards to avoid these defects. Stewart recommended an incision in the form of a diamond placed transversely, one end at the sternum, one at the posterior axillary fold. This incision has three advantages, that the resulting scar is invisible in evening dress, the axilla is covered by a flap of intact skin, and the

outer angle affords excellent drainage; it fails in affording incomplete exposure of the subclavicular region, and is often difficult to close. After many attempts to find the ideal exposure, I have adopted for the last four years a tri-radiate incision. The circle of minimum skin removal is marked on the breast with a needle, and three points are taken, one over the sternal end of the second costal cartilage, one over the upper end of the latissimus dorsi, and one midway across the rectus just below the costal margin. From each point an incision is made upwards towards the nearest part of the circle, dividing into two limbs which merge with its circumference. The three curved flaps thus outlined are dissected up to the limits of the operative field. At the completion of the operation they can be approximated with only moderate tension even when a great deal more than the usual amount of skin has been removed, since the skin is pulled from all directions to a common centre. The axilla is covered by a flap of healthy skin which is not crossed by a scar, and a complete range of movements at the shoulder is regained in a very short time.

St. Agnes' Eve*

St. Agnes' Eve—Ah, bitter cold it was;
Padre, for all his Jægers was a-cold,
The pros. crept trembling through the frozen grass,
And silent were the lambs in woolly fold:
Numb were Night-Sister's fingers as she told
Nurse Primrose to her duties. Thus she saith:—
"Ye-es, nurse, of late you have been good as gold
At clocking births and timing the last breath;
You shall be special to the Bright Annexe."

Nurse hurried at these words, beset with fears,
For there were prowling wardmaids all around
At glaring watch, perhaps, with ready sneers.
Up the wide stairs a darkling way she found,
In all the wards was heard no human sound.
And when her feet had reached the topmost floor,
The private room she sought and, when she found,
One timid knock she gave, and then one more.
No voice bade enter; she pushed wide the door.

Out went the taper, as she hurried in;
Its little smoke, in pallid moonshine died;
She closed the door, and, shaking down the thin
Quicksilver, hurried to his side;
No uttered syllable or woe betide.
But to her ears his resps. were audible,
Re-echoing from the adenoids inside,
As though a tone-deaf nightingale should swell
His throat in song, and die, disheartened in his dell.

Full on the patient shone the wintry moon,
And threw in shadow his discarded vest.
The nurse reflected (now that afternoon
She had not slept), now the time to rest;
And with her hands her weary eyes she prest,
And, yawning, thought the whole thing rather quaint.
He seemed a fine young man (weak in the chest,
So Sister said); the junior pro. grew faint;
He slept, so pure a thing, so free from mortal taint.

Then by the bedside, where the faded moon
Made a dim, silver twilight, soft she set
A table, and, still drowsy, put thereon
Her aching feet; the pulse chart, blank as yet,
Slips to the floor. O, for a cigarette!
The boisterous, midnight Clinical upon
His round, the extern's clarinet
Affray her ears, though but in dying tone;
The lift door shuts again, and all the noise is gone.

Then, wakening, her young, watchful arm
Shakes up his pillow. Shaded is his face
By the dusk curtain. Sudden an alarm
Grips her; the white moonbeams chase
O'er his pyjamas, and then reach his face.
Wider and wider grows her wondering eye,
It seems she never, never will her gaze displace.
She gapes awhile, entoiled in fantasy;
Alas, her sleeping patient is the M.O.B.

Ah, what a quandary! And so entranced,
Poor Primrose gazed upon his empty dress,
And listened to his breathing, if it chanced
To turn into an awkward wakefulness;
And, when she heard his snoring, she did bless,
And breathed herself, then from the room she crept,
Noiseless as fear in a wide wilderness,
And over the hushed carpet silent crept,
And vanished through the doorway, while he slept.

And still he sleeps an azure-lidded sleep,
In blanched linen, smooth and snowy-white,
While o'er his Austin Reeds the moonbeams creep,
And so he dreams away the live-long night.
No visions haunt him of that angel bright
Who watched him while he slept. An open door
Nurse Primrose dared not shut for very fright
And a neglected pulse-chart on the floor,
These meet his puzzled eye; just these and nothing more.

* Rumour, that lying jade, has it that a junior pro. being detailed to special the Bright Annexe Private Room, specialled the R.M.O.B., having mistaken the doors. Why our tame poet wanted to signalise this in verse (and what verse!) we do not know. We offer our sincere apologies to our readers, to the nurse, to the R.M.O.B., and to the shade of Keats, especially for that rhyme in the first stanza.—(Ed.)

Further Notes on Cholecystography

IN a recent article in the *Gazette* I gave an account of several aspects of cholecystography as it is practised in E. A. Graham's own clinic at St. Louis. A few more words on the subject do not seem out of place in view of the ever-increasing importance of liver and gall-bladder disease in medicine and surgery.

I think one of the most important points that is stressed by Graham is that cholecystography is primarily a functional test, and not an anatomical one. I am sure that there are many, like myself, who have not fully appreciated this aspect of the procedure. One is inclined to consider the anatomical findings to the relative exclusion of much else; very often the value of the test as a functional one lurks only in the background. Therefore, one can well reiterate that functional derangement is the first thing to consider when applying the test, and anatomical changes are to be considered after this.

This attitude, of course, typifies the history of our knowledge of gall-bladder disease, and, indeed, of the modern trend in disease of almost all other viscera as well. Thus the consideration of gross anatomical changes and their effects in such organs as the heart and kidneys or the alimentary tract has retreated before the wider conception of disorders of function of these organs without necessarily gross anatomical changes. In the examination of the heart or kidneys, assessment of the degree of functional disorder present outweighs the assessment of pathological anatomy, which is really only complementary to the functional derangement.

Before Lord Moynihan's description of the "strawberry gall-bladder" and the recognition that apparently minor anatomical changes in the gall-bladder might be associated with severe disturbances of function and thus be the cause of marked symptoms to the patient, the conception of gall-bladder disease was practically limited to stone-formation and the complications arising therefrom. The general recognition of such a condition as cholecystitis, without, necessarily, stone-formation, and giving rise to severe but often obscure symptoms, actually marks a very important advance in our conception of visceral disease.

The symptoms arising from such an inflamed organ are mainly those due to derangement of function, and the introduction of cholecystography was, in reality, an attempt to assess these functional changes by means of a functional test; at the same time, anatomical changes such as malposition, distortion or stone-formation are, of course, also demonstrable.

The degree of functional derangement is, as we know, assessed by the ability or otherwise of the gall-bladder to concentrate the salt; thus, I think many people observing a film after, say, an intravenous injection with no gall-bladder shadow visible would first think of an obstruction to the cystic duct. This is not the right conception; the first thought should be of a functionally diseased gall-bladder which is not concentrating the dye sufficiently to cast a shadow. The probability of the cause being an anatomical one, such as a stone in the cystic duct, comes easily second on the list.

This is again stressed by Graham in an analysis of some of the results of cholecystography. Thus, he considered 100 cases showing a normal gall-bladder shadow with normal concentration in which laparotomy was performed for some other reason, and in which it was possible to verify or correct the pre-operative assessment of the condition of the gall-bladder; 89 of the 100 were quite normal; 11 showed some abnormality—but this figure includes *any anatomical abnormality*, such as an adherent omentum, etc. This is the crux of the whole question. Functionally, these 11 gall-bladders were perfectly satisfactory, and it is of very little moment if anatomically they showed the remains of an old lesion of some sort or other when the emptying, filling and concentrating powers were normal. Graham draws an analogy with a finger bearing a scar from an old suppurative lesion; grossly and anatomically the finger is an abnormal one; functionally it is 100 per cent. normal.

Conversely, with cholecystography, the gall-bladder may show defective concentrating powers as revealed by a poor shadow. Even if on gross inspection at operation such a gall-bladder appears quite healthy it should be removed; I have several times seen Dr. Graham stress this point, and then on opening the removed organ be able to demonstrate cholesterosis or sand formation. I am well aware that this is a well-known and widely practised method of procedure; I am merely recalling it to stress the part cholecystography plays as a *functional* test in the pre-operative management of the case.

Recently another good illustration of this value of cholecystography came to our notice. A man of middle age reported, complaining of a painful swelling over the lower left costal cartilage following a blow. On first examination the swelling was rather indefinite, was firm, non-fluctuant, not tender, and with no signs of inflammation. It might very well have been callus.

X-rays were negative. An open mind was kept in view of possible malignancy; tuberculosis was, of course, considered. Exploration was advised. At an examination a few days later the swelling was quite different; it was hot, tender, semi-fluctuant and the skin over it showed slight redness and œdema. It was explored, and about a drachm of pus was found surrounding a costo-chondral junction; the adjacent ribs showed rarefaction and irregular destruction, the costal cartilage was apparently healthy. A suggestion of typhoid osteo-chondritis was made, but there was no mention in the history of an attack of typhoid fever. Culture of the pus, however, revealed a pure growth of typhoid bacilli, and on further questioning the patient it was learnt that 12 months previously he had been ill with fever, general malaise and abdominal disturbance for two or three weeks, but had not taken to his bed. It seemed clear that this must have been an instance of "ambulatory typhoid fever." His stools and urine were now examined, and found to contain many typhoid bacilli; on every examination the result was positive. There were absolutely no signs or symptoms whatsoever referable to the abdomen; not even leading questions could elicit any evidence of digestive disturbances since his attack of typhoid.

This was the sort of case which Dr. Graham had been looking for ever since the introduction of cholecystography. Apparently following the late war many typhoid carriers remained on the hands of the authorities, and they became a great problem, both to themselves and to everyone concerned. Many of them submitted to cholecystectomy in the hope of clearing up the condition, but it was found that only some 50 per cent. were made carrier-free in this way. There were no means of assessing which ones would be likely to be cured by removal of the gall-bladder and which would not be benefitted. The introduction of cholecystography, however, suggested a means of differentiation, and Graham was accordingly very anxious to apply the test to this patient. The dye was given intravenously, and *no gall-bladder shadow resulted.* The position was explained to the man, who very sensibly consented to operation; the gall-bladder was found to have omentum adherent to it and was removed; there were no other gross changes. Immediately following operation, however, the typhoid organisms disappeared from stools and urine, and in contrast to the constantly positive results before operation all examinations have since been negative.

In my earlier remarks on the subject I mentioned that the salt sodium tetraiodophenolphthalein was not now used for intravenous administration, but an isomer sodium phenoltetraiodophthalein was used instead, because of its ability to stain the plasma. To recall the procedure: After intravenous injection the plasma is stained a deep violet. As the dye is excreted by the liver, the staining grows less, and if a specimen of blood is taken at the end of half an hour or an hour the degree of retention of the dye can be readily estimated by a simple colorimetric method. Thus in a normal individual it is found that at the end of half an hour about 90 per cent. has disappeared from the blood-stream; the retention of dye is, in other words, 10 per cent. or less. If, however, there is any defect in function of the liver resulting in inability to excrete the dye, then it is found that the retention at the end of half an hour may be greatly increased; for instance, it may be as high as 90 per cent. It has been shown that jaundice alone does not cause an increased retention unless there is infection present; for instance, a case of carcinoma of the pancreas with jaundice of four months' duration showed a retention of only 12 per cent. In a case of primary carcinoma of the liver the excretion of dye was normal. Indeed, it has been suggested that this may be a useful point of differentiation between a jaundice of toxic origin or one due to malignant disease.

I am now able to give a more complete account of the values of this test for liver function, since Graham has recently been able to collect the relevant figures; these short notes will, in fact, probably anticipate his official publication.

To begin with, he points out that, although we have numerous means of testing kidney function, we have few such means for testing liver function. No one would think of operating on a patient without first testing the urine, and yet innumerable operations are done with no certain knowledge of liver function; this is particularly striking since we are able to live little more than 24 hours without a liver, whereas without kidneys one can exist for more than a week. It follows, therefore, that certainly for all operations involving the biliary apparatus some test capable of estimating liver function should be in use.

About three years ago three patients on whom cholecystectomy was performed and who appeared to be perfectly satisfactory operative risks died within 24 hours of operation, and at autopsy no gross cause could be demonstrated. On reviewing these cases it was discovered that in each instance the routine liver function test made at the same time as the cholecystography showed a greatly increased retention of dye; in one case being as high as 90 per cent.

It was realised that these patients had almost certainly been subjected to an operation at a time

when their liver function was grossly impaired, and had rapidly succumbed as a result. The lesson was obvious; since that time the retention percentage has been carefully observed, and no case has been operated on with a high dye retention. It is found that 35 per cent. is a safe upper limit, and if a patient shows a figure above this, such as 50 per cent., then surgery is withheld until the figure has fallen to safe limits. He is rested in bed and given glucose and calcium to aid recovery of liver function. In most cases a wait of two or three weeks is sufficient, and by that time the excretion rate is within a safe margin.

In order to observe the effects of this altered regime, an analysis has been made of the cases of cholecystectomy for the three-year period before and the three-year period after its introduction. Only cases of straight cholecystectomy have been included, so as not to confuse the issue.

In the three years1925, 1926 and 1927, 216 cases were operated on, with the loss of 14 patients—a mortality rate of 6 per cent.

In the three years 1928, 1929 and 1930, 224 cases were operated on, with the loss of only one patient, a mortality rate of 0.4 per cent. This one patient was a young man who died of pneumonia.

There has been no selection of cases; in no instance has operation been refused on account of high dye retention, it has been merely postponed. The only case in which operation was advised against was a woman of 65 who also suffered from angina pectoris.

Probably 75 per cent. of these cases have been operated on by Graham himself, the rest have been done by other operators. I think everyone will agree that the figures are really surprising; the loss of only one patient in 224 consecutive cholecystectomies is particularly remarkable, and compels one to consider the seriousness of submitting a patient to an operation on the biliary tract before carrying out such a test of liver function when it is at hand.

Graham, of course, does not suggest that this test is a perfect one. He realises that the functions of the liver are numerous and varied, and that we know very little of them; that a test may reveal deficiencies in one power of the liver and yet fail to reveal equal serious defects in an entirely different function. He does, however, suggest that, until refined methods of covering the whole field are instituted, this new method, which has shown itself to be of distinct value, should be used whenever possible. R. C. B.

Correspondence

SIR,—I have pleasure in saying that the Council of this Association proposes to award, in June, 1932, prizes of £25 each for the best essays on the following theme, "How is the condition of the teeth of patients of special importance in the work of medical practitioners?" by fourth and subsequent year medical students or by registered medical practitioners of not more than one year's standing (*i.e.*, from date of passing of qualifying examination), studying, or who have studied, at one of the medical schools in the undermentioned Groups.

2. A prize of £25 will be open for award in each of the following six Groups of Schools:—

Group 1.—Guy's Hospital; London Hospital; St. Bartholomew's Hospital; St. Thomas's Hospital.

Group 2.—Charing Cross Hospital; King's College Hospital; Middlesex Hospital; Royal Free Hospital (London School of Medicine for Women); St. George's Hospital; St. Mary's Hospital; University College Hospital; Westminster Hospital.

Group 3.—University of Birmingham; University of Bristol; University of Durham; University of Leeds; University of Liverpool; Victoria University of Manchester; University of Sheffield; Welsh National School of Medicine.

Group 4.—University of Aberdeen; School of Medicine of the Royal Colleges, Edinburgh; University of Edinburgh; Anderson College of Medicine, Glasgow; Queen Margaret College (School of Medicine for Women), Glasgow; St. Mungo's College, Glasgow; University of Glasgow; University of St. Andrews.

Group 5.—Queen's University, Belfast; University of Dublin (Trinity College); National University of Ireland (University College, Cork; University College, Dublin; University College, Galway); Royal College of Surgeons in Ireland (Schools of Surgery).

Group 6.—The Medical Schools in the British Empire outside the British Isles.

3. The essay, which should not exceed 5,000 words, should be clinical in nature, and must include concise notes of up to, say, three cases personally observed by its writer.

4. The essays will be judged by examiners appointed by the B.M.A. Council, and the decision

of the Council will be final. The prizes will be awarded to the authors of the essays deemed by the examiners to be the best sent in. If, however, no essay received from a Group is considered by the examiners to be deserving of a prize, no prize will be awarded in that Group.

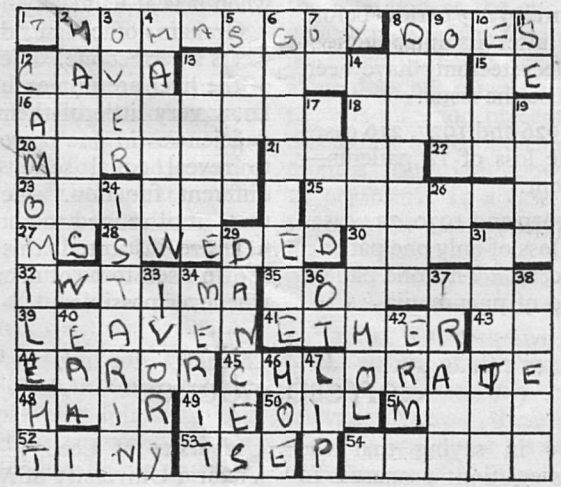
5. The essays should be plainly written or typed on foolscap paper (one side only), and must reach the Medical Secretary, B.M.A. House, 19, Tavistock Square, London, W.C.1, by April 15th, 1932. Each essay must be signed by a pseudonym only, and be accompanied by a signed and dated statement that it has been the *bona fide* work of the competitor, and that he or she comes within the definition (as above) of those elegible to compete; together with his or her full name, pseudonym, address, medical school, and (if on Medical Register) month and year in which final examination qualifying for registration was passed.

Yours, etc.,

ALFRED COX,
Medical Secretary.

Tavistock Square,
London, W.C.1.

Crossword



ACROSS

1. Founder of this Hospital.
8. Functions.
12. A vein.
13. An important science.
15. Right eye.
16. Deviating from the normal type.
18. Follow.
20. Clinical instrument.
21. Passed.
22. A stimulant.
23. Lazy.
25. A study of these is necessary to a physician.
27. Surgical degree.
28. From whence the remedial exercises hailed.
30. She gives us No. 22 across sometimes.
32. Innermost coat of the vessels.
35. Distinguished.
39. Yeast.
41. Used as an anæsthetic.
43. Article.
44. Blunder.
45. A salt.
48. Don't let this fall off.
49. That is.
50. Of great medicinal value.
51. Appearance.
52. Minute.
53. Repeat this for a disease-bearing fly.
54. Plump (Scotch).

DOWN

2. Customary acts.
3. Across.
4. Essence.
5. Surgical instrument.
6. Mortification.
7. As.
8. Loss of memory for words.
9. Sac.
10. Real.
11. The right direction for Guy's.
12. A stomachic tonic.
13. Came up.
14. Liquid distilled from castor oil.
17. Muscles are sometimes this.
19. Free from pain.
24. Found in brain tissue.
26. A Resident.
29. Very popular at Guy's.
31. Used in dental work.
33. Hard composition which mostly gives us trouble.
34. Deserve.
36. As far as (reversed).
37. Mass of nerve tissue.
38. Hostile force.
40. Date.
42. Prefix G for a microbe.
46. Garden implement.
47. Part of the face.
48. Total hypermetropia (abbreviated).

Sport

Cricket

Guy's v. St. Bart.'s

THIS match was played at Winchmore Hill on Saturday, June 20th, and resulted in a draw.

Guy's seemed to be suffering from a reaction following the Cup Ties, with the result that our fielding was very bad—eight catches being dropped. St. Bart.'s batted first, and knocked up 177 for the loss of 5 wickets, Walt bowling well to obtain four of these at the cost of only 25 runs—a very creditable performance.

The Hospital batted after tea, and when stumps were drawn had scored 120 for 6, Doherty batting well for 43 and Outfin being undefeated with 4 to his credit.

Scores—Bart.'s, 177 for 5 dec. (Rierre 64, Kirkwood 41); Guy's, 120 for 6.

Guy's

T. D. Ridsdale, c. Nunn, b. Wedd	12
W. H. Lewis, b. Wedd	2
H. D. Devan, b. Nunn	5
J. A. G. Starnes, b. Mundy	9
G. V. Doherty, st. Banford, b. Wedd	43
S. R. Peatfield, c. Nunn, b. Mundy	2
R. M. Outfin, not out	43
Extras	4
Total	120

E. V. B. Widdowson, M. Walt, S. M. Whitteridge, E. J. Davis did not bat.

Bowling—Whitteridge 0 for 66, Doherty 1 for 31, Walt 4 for 25, Davis 0 for 37, Devan, 0 for 7.

Guy's v. Pinner

THIS match was played at Pinner on Wednesday, July 1st, and resulted in a win for our opponents. It is getting late in the season, and this makes it increasingly difficult to call on a full side, and so on this occasion we were not very strongly represented.

The Hospital batted first, and were all out for 129, 37 of which were contributed by Doherty, who batted well until he started trying to hit, when he was promptly caught.

When Pinner batted, Whitteridge was the only bowler to meet with any success, taking 4 wickets for 52.

Scores—Guy's, 129; Pinner, 163 for 7 (Grownow 56, Brown 51).

Guy's

T. D. Ridsdale, b. Richmond	4
H. D. Devan, b. Brown	0
G. V. Doherty, c. Parry, b. Mayhew	37
J. A. G. Starnes, c. Yarrow, b. Richmond	1
E. V. B. Widdowson, b. Mayhew	19
R. M. Outfin, c. Robinson, b. Mayhew	27
L. E. Marshall, c. and b. Grownow	2
S. M. Whitteridge, not out	11
G. M. Johnson, st. Yarrow, b. Richmond	3
T. J. M. Lowry, b. Brown	2
L. S. Woodivis, b. Brown	6
Extras	17
Total	129

Bowling—Woodivis 0 for 26, Whitteridge 4 for 52, Doherty 0 for 28, Marshall 0 for 14, Devan 0 for 9, Lowry 1 for 8, Widdowson 1 for 5.

Guy's v. Honor Oak

THIS match was played at Honor Oak on Saturday, July 4th, and resulted in a draw. Honor Oak batted first, and made 225 for 5 wickets, when the innings was declared closed. Nichol knocked up 107 for our opponents, and Lowry came out with the best analysis, taking 4 for 37—a good performance in so large a total.

The Hospital replied with 118 for 9, and so managed to force a draw. Widdowson batted well for 40.

Scores—Honor Oak, 225 for 5 (Recordon 39, Henty 107, Weymouth 45); Guy's, 118 for 9.

Guy's

S. R. Peatfield, b. Maxwell	0
T. D. Ridsdale, b. Gibson	0
H. D. Devan, b. Maxwell	2
E. V. B. Widdowson, st. Mulley, b. Recordon	40
G. V. Doherty, c. Recordon, b. Gibson	24
R. M. Outfin, b. Maxwell	0
J. C. Carr, st. Mulley, b. Recordon	13
T. J. M. Lowry, b. Gibson	18
E. Evans, b. Maxwell	5
A. R. Clarke, not out	3
G. M. Johnson, not out	1
Extras	12
Total	118

Bowling—Doherty 0 for 54, Devan 1 for 80, Lowry 4 for 37, Evans 0 for 18, Widdowson 0 for 19, Johnson 0 for 9.

Guy's v. Old Charlton

THIS match was played at Honor Oak on Saturday, July 11th, and resulted in a win for Old Charlton by 5 wickets.

The Hospital batted first and compiled 149, Windsor Lewis being top scorer with 37. Old Charlton then went in and made the runs for the loss of 5 wickets.

Scores—Guy's, 149; Old Charlton, 189 for 5 (Barnes 71, Cooper 56 not out).

Guy's

T. D. Ridsdale, b. Cannon	20
W. H. Lewis, b. Cruikshank	37
M. Walt, l.b.w., b. Head	3
J. A. G. Starnes, b. Cruikshank	15
E. V. B. Widdowson, c. Newman, b. Cruikshank	23
R. M. Outfin, b. Newman	12
H. D. Devan, c. Cruikshank, b. Newman	7
T. J. M. Lowry, b. Cruikshank	5
G. M. Johnson, not out	19
R. A. P. Hogbin, b. Cruikshank	1
E. C. Jenet, b. Baxandall	0
Extras	7
Total	149

Bowling—Walt 1 for 42, Lowry 1 for 25, Devan 1 for 37, Hogbin 0 for 8, Johnson 0 for 9, Windsor Lewis 0 for 18, Widdowson 0 for 17, Starnes 1 for 4, Ridsdale 0 for 16.

Guy's v. Three Counties

THIS match was played at Arlesey on Saturday, July 18th, and resulted in a win for our opponents by 49 runs.

Three Counties batted first and fared badly before the bowling of Payne and Whitteridge, losing 7 wickets for 61; then, however, they made a recovery, the remaining wickets putting in 95 runs. Whitteridge took 4 for 59 and Payne 4 for 57.

On going in to bat, the Hospital fared badly and were all out for 107, Widdowson showing a steady defence in making 26.

Scores—Three Counties, 156 (Page 41); Guy's 107.

Guy's

W. H. Lewis, c. Wath, b. Robinson	1
T. D. Ridsdale, b. Robinson	11
E. V. B. Widdowson, b. Robinson	26
J. A. G. Starnes, b. Watts	12
J. C. Carr, b. Watts	0
H. Cameron, c. Page, b. Watts	8
S. M. Whitteridge, l.b.w., b. Watts	18
R. V. Payne, b. Saunders	4
N. E. Gillham, not out	9
G. D. Fleetwood, b. Saunders	4
D. Robertson-Ritchie, b. Saunders	0
Extras	14
Total	107

Bowling—R. V. Payne 4 for 57, Whitteridge 4 for 59, Cameron 0 for 7, Widdowson 1 for 22.

Hospital Information, etc.

Pass List

LONDON UNIVERSITY.
M.D. EXAMINATION.
July, 1931.
BRANCH I.
Medicine.

I. Bakhsh — P. Berry

SECOND EXAMINATION FOR MEDICAL DEGREES.
PART I.
July, 1931.

J. A. Bleaden	J. H. Lee
H. V. Brown	H. A. Leggett
A. J. Colbert	C. A. Lillicrap
J. W. Doupe	R. F. Pusey
E. J. Elliott	E. B. Rowe
J. E. Giesen	A. E. K. Salvi
F. R. Kilpatrick	F. Taylor

PART II.
July, 1931.

A. G. Edwards	J. G. Holman
R. S. Ellis Brown	J. W. Rhys
J. F. A. Forster	L. N. Trethowan
J. Greenhalgh	W. M. Van Essen
W. H. Hamilton	I. Zieve

FOURTH (B.D.S.) EXAMINATION IN DENTAL SURGERY.
T. W. E. Pugh

Papers by Guy's Men

G. B. Dowling. Seborrhœa and seborrhœic dermatitis. *Clin. J.*, 1931, lx, 313.

—— Treatment of dyshidrosis or cheiropompholyx. *Lancet*, 1931, ii, 145.

R. P. Rowlands. Hour-glass contraction of stomach. *B.M.J.*, 1931, ii, 50.

Changes of Address

H. M. H. Ashwin, M.R.C.S., L.R.C.P., 21, Wilton Street, Belgrave Square, W.1. *Sloane* 1508.

G. B. Longhurst, L.D.S., R.C.S. (Eng.), Netherleigh, Blenheim Road, Minehead, Somerset.

O. Marriott, M.D., 30, Walbrook, London, E.C.4. *Mansion House* 6322.

Birth

FULLER.—On June 22nd, 1931, to Winifred Muriel (née Sheppard), wife of H. J. Fuller—a son.

Marriage

SAUNDERS—SANKEY.—On June 28th, 1931, by licence, James Frederick Saunders, M.R.C.S., L.S.A., of 84, Rose Hill Street, Derby, to Esther May Sankey, of Fair View, Castle Gresley, near Burton-on-Trent.

EDS. { P. V. R. / J. S. B.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

Volume XLV — *22nd August* 1931 — *Number* 1124

PASSIM

THE Second Interim Report of the *Lancet* Commission on Nursing furnishes a detailed picture of the nurse's life. In its account of the hardships and sacrifices entailed in a career devoted to the profession, it only serves to emphasise the fact that those who choose nursing as a vocation must do so purely from a sense of honour and duty. The every-day comforts and pleasures of life which the average modern girl expects to enjoy must be largely foregone. The amusements are few and the social life restricted. The hours of work are long, and the tasks and the responsibilities heavy. The remuneration is small and in no way proportional to the amount of work done. When these facts are considered, it is not surprising that many hospitals are now finding difficulty in obtaining suitable candidates to fulfil the arduous and responsible duties of the nurse. In the Middle Ages, when the profession of nursing had its inception, the women of the period felt called to take up nursing as a career on account of the ideals of service and duty, and in doing so they had no thought of personal gain or reward. But in these modern days, when the female population out-numbers the male and when one hears so much about the emancipation of women, it is not surprising that those who feel urged by the same selfless motives are becoming fewer in numbers. Many girls now find it necessary to make their own livings, and they realise that they can do so more profitably and with more pleasure in other walks of life.

The facts elucidated by the *Lancet* Commission only serve to point out the truth of these views. From an analysis of the replies to a series of 36 questions addressed to hospitals in England and Wales, it was found that one-fifth of all hospitals fail to secure suitable candidates as Sisters, and one-half fail to secure staff nurses and probationers of the necessary standard. The factors to which the hospitals attribute their difficulties vary widely, but the majority agree that the nurse's life is unattractive and the prospects poor. Many remedies are suggested, such as better prospects at the completion of training, increased remuneration, and the co-operation of educational and hospital authorities in training nurses at a younger age. But all these remedies have their disadvantages. The results following improved prospects have been disappointing. Increased remuneration attracts the wrong type of girl; and it is difficult for a girl of tender years to decide that nursing is her vocation. Any remedy that tends to relegate to the background the fact that nursing is a career for those who have at heart the ideals of self-sacrifice and succour must inevitably fail in its purpose.

WE have recently received the Annual Report of the London Ambulance Service (L.C.C.). It is interesting to note that the two busiest stations in London were Bloomsbury (5,915 cases in the year) and the Elephant (5,811 cases in the year). Of the cases conveyed to voluntary hospitals, Guy's has the largest number (1,913), the Royal Free Hospital being next on the list with 1,827 cases. Lambeth Hospital received the greatest number (1,571) of cases taken to any municipal hospital.

When, continuing our perusal of the Report, we learned that the busiest days of the week were Fridays and Saturdays, and that the busiest hours of the day were 6 to 8 p.m. and 10 to 11 p.m.,

we could not help feeling that D.O.R.A., that stern Dictatrix of British domestic life, played no small part in determining at what hours the placidity of the Surgery was to be rudely interrupted by the clanging of an ambulance bell in the Maze Pond.

THE return of Mr. R. C. Brock from St. Louis to take up here his new post of surgical registrar reminds us that not a few familiar figures at Guy's will soon be, or already are, on the other side of the Atlantic. Dr. E. T. Conybeare has set his face towards Baltimore, where he is to be Fellow in Medicine at the Osler Clinic, Johns Hopkins University; Mr. Doherty is sailing shortly—he intends visiting the Mayo Clinic, and will undoubtedly enjoy himself immensely in his usual fashion; Mr. Rake has, for some time now, been working at the Rockefeller Institute, and we believe that Mr. Stewart Harrison is abandoning Central Europe in favour of the Mayo Clinic, where he is going as a resident radiologist. We wish them all *bon voyage*, and look forwards with interest to their return.

WE would like to draw the attention of old Guy's men to the Post-Graduate Course which is to be held during the week of the Biennial Dinner in October. This course is to extend over a period of two days, and will consist of an intensive series of Demonstrations and Clinics. Needless to say, the success of the project will depend on the number of men who attend, and it is hoped that the majority of those who assist at the Dinner will take advantage of this opportunity to acquaint themselves with the most recent advances in their profession.

LAST Friday evening the College Dining-Room saw yet another "Going-Off" Dinner. There was, however, a marked difference from similar functions in the past, in that the exuberant element usually so much to the fore in its predecessors was almost entirely absent on this occasion. We were pleased to see that the Staff was more strongly represented than is usually the case. As a reward for our restrained behaviour we were able to hear and enjoy several amusing speeches.

We should like to congratulate Mr. O. Ive and Mr. N. S. Plummer on their election to be President and Vice-President of the Residents, respectively, for the ensuing three months.

DURING the past few weeks the resources of the *Gazette* have been severely shaken. It is only a short time since Mr. Bishop resigned from his position as Editor and now that Mr. Reading is leaving us we feel entirely lost. During his term of office Mr. Reading has delighted the readers of "Passim" with the stimulating and fluent way in which he has dealt with current topics. Moreover, by his energy and persistence many unwilling contributors have been induced to swell the pages of the *Gazette* with the products of their literary talent, which otherwise might have remained latent. We would like to take this opportunity of wishing Mr. Reading success in his new appointment.

Obituary

JACK HERBERT TIMPSON

IT is with great sorrow that we have to record the tragic death of Jack Herbert Timpson on July 24th, 1931. He was killed by a holiday accident in the Pyrenees, near Viella.

A son of Mr. Fred. M. Timpson, Jack was born on February 1st, 1909. Educated at Bancroft School, Woodford, Essex, he soon distinguished himself in athletics.

He entered upon the dental course at Guy's in October, 1927, and would have qualified L.D.S. this November. A prominent member of the Boxing Club, he represented the Hospital on many occasions, and was awarded his Half-Blue in 1930.

His sudden death came as a great shock to all his friends. He will never be forgotten by those who knew him, and he possessed such a cheery personality that he will always be remembered with a smile.

He knew no fear, and it was this that led him to his death. When he and those with him were lost in the mountains, he began the perilous task of climbing down to a road which ran far below.

Great sympathy must be offered to his parents, as the day of Jack's death was the thirteenth anniversary of the death of another son in the war.

The Lymphoid Tissue of the Upper Respiratory Tract

A Clinical Lecture by T. B. Layton, Esq., D.S.O., M.S.

I—ADENOIDS

GENTLEMEN,—In all medicine there is no worse term than "adenoids." Its first part comes from the word used by Hippocrates to mean "a gland," its second is a suffix meaning "like." This you may remember from your geometry in such words as "trapezoid."

"Adenoids," therefore, are "gland-likes." If we were always to speak of "gland-likes" we should probably stop and think each time of what we mean. It is, perhaps, a pity we do not, for the condition to which we apply the term is a vague and indefinite one on the borderland between physiology and pathology. A vague and indefinite term is a useful one to describe such a condition if it be remembered that both the term and the condition are vague and indefinite, and if in every case where there is a suspicion of the condition being present the pro's and con's are carefully weighed to decide whether it has overstepped the physiological into the pathological stage. Unfortunately in the busy rush of modern life this is just what does *not* happen. The term is accepted as meaning a definite pathological and clinical "entity." It is assumed that operation is the only means whereby this can be remedied; and the decision to perform this operation is hastily made without that weighing of the pro's and con's that its importance demands. Let us try to be quite clear as to what we mean by "adenoids" before we consider the diagnosis and treatment.

There is a certain tissue called "lymphoid-tissue," the main function of which is associated with those changes in our body which form its reaction to injury. The best definition of inflammation that I know is "The reaction of tissue to injury short of death." Inflammation is primarily a physiological reaction rather than a pathological lesion, but the boundary between the two cannot be defined.

This lymphoid tissue is widely scattered throughout the body either in microscopical or in macroscopical quantities, and of the latter some lie beneath the mucous membrane of the alimentary canal concentrated at certain points into groups. These groups have been called by Digby "the sub-epithelial lymph-glands," and one such group surrounds the junction of the stomodæum with the fore-gut at the crossing of the respiratory and alimentary tracts. The name "tonsils" has been given to this group; on either side are the two faucial tonsils, below is the lingual tonsil, and in the roof the naso-pharyngeal one. These, however, do not constitute all the lymphoid tissue in this region; between these four tonsils lie other smaller masses, some of which surround the Eustachian tube and spread up into the recess behind this known as the fossa of Rosenmuller. It is the naso-pharyngeal tonsil and this neighbouring tissue which, when changed, become adenoids.

"Adenoids," then, must never be considered by themselves, but in relation to all the lymphoid tissue of the upper respiratory tract, and this in relation to the state of the lymphoid tissue of the whole body.

In infancy and childhood the lymphoid tissue of the whole body is relatively and actually greater than it is in adult life. During adolescence the lymphoid tissue of the body becomes less, and that of the upper respiratory tract takes a part in this diminution, and the first to abort is the naso-pharyngeal tonsil. This process begins earlier than many think; Escat puts it at the age of eleven. Then the intermediate masses tend to disappear, followed by the faucial and, lastly, by the lingual tonsil. The change is ended at the age of 16, but may be delayed so that it is not complete until the age of 22. The lymphoid tissue in this region does not entirely disappear, and if any one part of it has been removed, some other may remain longer than it would have done but for this removal.

When a child is born into this world it has a small quantity of hereditary resistance, and when it has become a man it has a considerable amount of acquired immunity. There can be no doubt that in this acquisition the lymphoid tissue of the body bears a great part. Whether anti-bodies of the blood are actually formed from the sub-epithelial glands as Digby believes or whether these function chiefly as sieves to hold up organisms from passing through the mucous membrane into the body proper is immaterial to the main principle that the tissue forming these sub-epithelial glands must be conserved so far as it can during the years that the immunity of the individual is being built up.

Of these sub-epithelial glands different masses bear the main brunt according to the types of organism that are most likely to gain access to the

body. In hot climates these are those of the colon group, and disturbances of the alimentary canal form the chief anxiety of the mother for her children. In our temperate zones, where sanitation is relatively easy and is highly developed, the anxieties on this score are not great. They are replaced by anxieties on the score of the organisms that invade the upper respiratory tract and notably of the hæmolytic streptococcus.

This organism gains access to the body by the nose and mouth, and the four tonsils bear the brunt of the first and main attack. I cannot see how we can escape from the deductive reasoning that these tonsils are of vital importance to the young, and I believe that clinical medicine affords inductive evidence to support this view.

Under our present conditions of life no child can escape infection. On many occasions this is of the sub-clinical type in which the organisms gain access to the nose and throat, but the reaction on the part of the tissue in these regions is not great enough to produce symptoms. On other occasions, however, the reaction is greater and the child is described as having a cold. When this happens the mucous membranes swell, and of all the tissues in these membranes that which swells most is the lymphoid tissue. This swelling then produces certain symptoms, but as the swelling is of a transient nature it should not be called "adenoids."

To have a certain number of colds is, then, a normal experience in the life of the child. In my opinion it is even desirable that they should occur. They are no cause for alarm, and after one, or perhaps two, winters the child grows out of them and is all the better for having had them. With each cold the naso-pharyngeal lymphoid tissue swells, and as the cold recovers becomes small again. If, however, these infections are unduly numerous or prolonged over too great a period the resolution may not be complete, and there is then a sufficient permanent enlargement of this normal structure to produce an obstruction either to the posterior nares or to the Eustachian tube.

It is this permanent enlargement of a normal structure that we call "adenoids."

Let us be quite clear of this, that adenoids are the *result* of infections, not the cause of them. When we come to consider the faucial tonsils we shall learn that it is the organisms embedded in these structures and developing therein so as to cause local and distal disturbances that are the cause of our anxiety. The tonsils have become "a source of sepsis." Now this is not so with the adenoids. For the past 12½ years, after washing them in running water I have examined all masses of adenoids that I have removed. During that period in only three have I seen crypts full of purulent material such as one finds in tonsils, and which we look upon as one of the criteria of their sepsis. And of these three two occurred in one afternoon from a brother and a sister in successive operations. All the others have been merely masses of lymphoid tissue without macroscopical evidence of change.

If, then, adenoids be "infected," it is the organisms that are the cause of the adenoids, not the adenoids the cause of the sepsis.

The tonsil problem is one of sepsis, the adenoid problem one of mechanical obstruction.

We have learnt that this lymphoid tissue disappears in adolescence, and that that of the naso-pharynx goes first. During this period are completed those changes whereby the face alters from its infantile and childish stages to its adult appearance, and with the completion of this change is a development of the naso-pharynx. When we put these facts together we realise that *there is no such thing as adenoids in the adult.*

We can now define adenoids by saying that they are a permanent enlargement of the lymphoid tissue of the naso-pharynx sufficient to cause obstruction to the posterior nares or to the Eustachian tube. The mass which, when enlarged, obstructs the posterior nares is the naso-pharyngeal tonsil, and we may call these the Rhinological adenoids. Those which obstruct the Eustachian tubes are enlargements of the lateral lymphoid tissue in and near the fossæ of Rosenmuller, and we may call these the Otological adenoids. We are beginning, then, to have a clear conception of "gland-likes" when we add to this definition the knowledge that they do not exist in the adult, and that "septic" adenoids is a meaningless expression. The occasional and isolated cases where these statements do not hold good are merely those exceptions that prove these rules.

There are still two points into which we must go before our conception is quite clear. Up to now we have considered these adenoids as an isolated mass in the naso-pharynx; we must do so also as a part of a general enlargement of the lymph tissue of the upper respiratory tract, or as a part of a lymphatic enlargement of the whole body. It is doubtful whether the term "adenoids" should be applied to such swellings, but it is well to include them under it that they may not be forgotten.

When every mass of lymphoid tissue in the upper respiratory tract is seen to be hypertrophied it means that there is great need for this lymphoid tissue. It usually occurs in persons living under

bad conditions of hygiene, and this is usually associated with overcrowding in the house or tenement in which the child lives. No operation on the lymphoid tissue of the upper respiratory tract should be done on children from overcrowded houses, especially if they come from the ground floor or basement thereof. Again be it noted the adenoids are the result of the great excess of organisms with which the upper respiratory tract has to deal; they are *not* the cause of the ill-development and anæmia from which the child suffers. These are due to the bad hygiene, and the adenoids are an attempt on the part of Nature to prevent the evil results of this.

There is a condition in childhood which was named the *exudative diathesis*, and a part of this condition is a general enlargement of the lymphoid tissue all over the body, and as a part of this enlargement that in the naso-pharynx becomes enlarged. These children are very susceptible to infections, and thus a further reaction is set up in the naso-pharynx. They are, therefore, liable to have the symptoms of adenoids; again be it noted these are the result of a condition that renders the child liable to infection, they are not the cause of the colds from which it suffers. Now the exudative diathesis is a medical condition that must be treated by medical methods; it is quite wrong to remove surgically one mass of lymphoid tissue and to neglect the other masses all over the body. An English physician, Dr. Eustace Smith, described under the name of "mucous disease of childhood," what is now held to be a small part of the wide problem of the exudative diathesis. The symptoms of this are fairly definite, and the treatment is simple. I have no doubt that much of the benefit that has in the past been attributed to the operation for adenoids should be put to the credit of the careful diet and attention that is given to a child before and after any operation.

I hope we now have a clear idea of what is meant by "adenoids." Let us now turn to consider the diagnosis.

Diagnosis

The mother may bring the child with one or more of any number of symptoms. These have at some time or another been said to be due to adenoids. In your questioning you must narrow these down to the symptoms which are presumptive evidence of obstruction either to the posterior nares or to the Eustachian tubes. Before going into these we may say a bit more about three things that have been attributed to adenoids without any justification at all. These are nocturnal enuresis, mental deficiency and the so-called typical adenoid facies.

Cases of enuresis may have recovered after an operation for adenoids, children suffering from enuresis may have adenoids; but enuresis is not caused by adenoids, nor is a scraping of the naso-pharynx the treatment for it. So also with mental deficiency. The mere presence of adenoids is not a cause of mental deficiency or even want of sharpness; adenoids may make the child deaf, and, as a result of this, the child may not reply sensibly; the deafness may even prevent the mind developing by cutting off one means of access to it; and if the child is backward this may cause it to become more so. Therefore, in backward or mentally deficient children attention to the otological adenoids is of extreme importance, but, except through deafness, adenoids are never the cause of backwardness of any sort.

As to the so-called typical adenoid facies, this was an idea which was "got across" in the nineties by two magnetic personalities, Wm. Arbuthnot Lane and Lambert Lack. It has never been accepted either in the States or in France; it is not typical, and it is not necessarily associated with adenoids; and when it is there is no more evidence that the adenoids are the cause of the facies than that the facies is the cause of the adenoids, which has also been suggested. No evidence has been forthcoming that adenoids are the cause of the long, narrow nose, the deviated septum, the high arched palate with the superior protrusion, and the irregular teeth which together make up this facies; yet so firmly has the idea become rooted in the minds of the profession in this country that anyone who doubts the association is supposed to produce evidence whereby to prove the negative rather than be entitled to demand the evidence upon which the assertion is based.

In the first place, the condition is by no means a typical one. To get the fully-developed case such as one sees in the surgery books may take a year or more in a large clinic such as one of the Guy's ones, where 4,000 patients are seen a year. In the second, if you put your finger into the naso-pharynx of such a patient it is as like as not that no adenoids will be found. The patient may give no history of ever having had difficulty in breathing through the nose, and others who give such a history over a long period of time may have a perfect arch to the palate with no superior protrusion. What the condition is due to I do not know; I only know it is not due to adenoids. Sir Arthur Keith thinks it began to arise in the early part of the 18th century, and suggests that a new English type has been evolving in the last two centuries. Other anatomists deny that there has been any appreciable change in our characteristics in ten times that period. It may be

associated with some dietary faults or with a generally poor hygiene. Whatever it is it should never be considered as an indication for an operation upon the naso-pharynx.

We may then say that the rhinological adenoids cause difficulty in breathing through the nose and the otological ones cause deafness, and that these are the only two symptoms for which adenoids should ever be removed.

Rhinological Adenoids—Symptoms

With regard to the difficulty of breathing through the nose there are two things to consider: first, that the child has a difficulty in so breathing, and, secondly, that this difficulty is due to an obstruction in the naso-pharynx and not in any other part of the respiratory tract. The symptom on which the suspicion of mouth-breathing is usually based is snoring at night, but there are two fallacies therein. Parents are sometimes bad observers, and grinding of the teeth is often mistaken for snoring. This is a symptom of mucous disease and not of adenoids. Other children sleep with the mouth open owing to the position into which they get. If they are turned on the side and the head bent they may be able to sleep quietly with the mouth shut. The fact that the child stands opposite you with the mouth open does not necessarily mean there is nasal obstruction. Some children get into the habit of standing like that. You can call it want of tone in the jaw muscles if you like, or you can say it is a part of the way in which the modern child flops on any and every occasion. It is no commoner than it was when I started thinking about these things 20 years ago, and probably no commoner than when the adenoid operation began to be practised 20 years before that. The treatment for it is breathing exercises, not operation.

When there really is nasal obstruction in a child the commonest cause is a general swelling of the mucous membrane. This is usually due to some chronic infection, and is associated with a mucous secretion, and as the child also cannot blow the nose this secretion stagnates and itself becomes a cause of obstruction and also a cause of increase of the lymphoid tissue. Again be it noted the adenoids are the result of the symptom, not the cause of it. After a time these children lose the power of so co-ordinating their muscles as to blow the nose, even when there is no obstruction. The next cause of nasal obstruction in the child is a narrow anterior nares. It is a difficult thing to treat; sometimes it cannot be treated, and it tends to get worse as time goes on. The narrow slit-like nares get sucked in as the patient breathes, and so the obstruction becomes more complete. Being a cause of obstruction that can be seen without any special examination, it is the one most often missed. Lastly, there is a deviation of the septum.

Physical Signs

When you are confident that there is nasal obstruction and that it is due to none of these causes you must make an objective examination for adenoids. This is done by anterior rhinoscopy, by posterior rhinoscopy and by digital examination. I want you to remember that it is the relation of the amount of lymphoid tissue to the size of the naso-pharynx that is important and not the actual amount of lymphoid tissue present. What you have to estimate is the amount of space below and in front of the mass of lymphoid tissue.

I do not find that British rhinologists pay much attention to anterior rhinoscopy in the diagnosis of adenoids. It was taught me by Prof. Hugo Frey, of Vienna, in 1912, and I have found it most valuable. The more carefully you practise anterior rhinoscopy the more often you will be able to see a reflection of light from the moist posterior wall of the naso-pharynx. If you then make the patient swallow and can see the soft palate come up there is not enough lymphoid tissue to label it rhinological adenoids and to warrant operative interference. To bring up the soft palate it is better to make the patient say "button" than to get them to try to swallow.

If you can see the soft palate come up you need go no further so far as operative interference is concerned. In many noses, however, you will not be able to see the posterior pharyngeal wall, and further examination is necessary. I do not find posterior rhinoscopy easy to do in any child, and do not attempt to use it under 10 or 12. In the older child, however, it is most valuable. You want to look for the posterior margin of the septum. You see it rise straight and white like the pillar between two arches, and as you trace it up you see it widen out above in the way the flanks of two adjacent Gothic arches rise from the central pillar. This is the normal condition, and, if present, there are no rhinological adenoids. When these are present they form a straight horizontal line up to which the septum passes, like the upright with two horizontal stones on it in the outer circle of Stonehenge.

When this appearance is present it is pretty certainly due to adenoids; but I think in every case a digital examination should be made before advising operation. Here, again, you must remember that what you set out to feel is not the soft mass at the tip of the naso-pharynx, but the amount of space in front of this between it and the posterior nares.

Treatment

So far I have spoken as though the only treatment for the rhinological adenoids were operation. I

now want to impress upon you that operation is the final treatment for adenoids, to be employed only when the other methods fail.

First, then, you must determine whether the adenoids are purely a local enlargement or whether they are a part of a more general enlargement. If they are the latter you must treat the exudative diathesis or the mucous disease of which they are a part, and here let me give you a word of warning. When you are in doubt use the medical treatment first; do not be led into saying, " Let's do his adenoids and see how he gets on." There is never any urgency for an operation in rhinological adenoids; six months or more is not too long to wait if there is any doubt.

If there is a general enlargement of the lymphoid tissue of the throat without the exudative diathesis, go into the question of the hygienic conditions under which the child lives and correct these if you can, and if you cannot do not remove that lymphoid tissue. Do not be led into operating by the saying, " Well, we must do something ! " If there is no better argument for an operation than that, it is certain that none should be done. Often we cannot improve the hygiene of the home, but if we cannot do the right thing we must not be led to do the wrong.

I pass now to local treatment. In considering this you must remember that all you set out to do in an operation for rhinological adenoids is to establish an airway so that nasal respiration can be restored. If, then, it can be restored without operation, no operation should be done.

There are two factors which tend to increase the nasal obstruction caused by adenoids, and if we can remove these factors a partial airway may be restored and the use of this by means of breathing exercises will do the rest. Breathing exercises as a part of the post-operative treatment are absolutely necessary if the operation is to do any good, but we have rather forgotten the use of breathing exercises as an alternative treatment to operation. If the two increasing factors are dealt with it will frequently be found that a course of breathing exercises will do all that is needed.

These factors are the puddling of muco-pus in the nasal fossa and the loss of power to blow the nose. They are dependent one upon the other, but they are quite distinct, and the case needs a different approach according to which predominates.

If it is merely muco-pus that is puddling in the nose, this must be removed before breathing exercises are done. The child should be stood sideways to you. With one hand flex the head slightly, with the other hold the child's handkerchief near but not against one nostril while you block the other with the finger. Then make the child blow, and as the muco-pus arrives at the nares catch hold of it and pull it away. Go on doing this till that side of the nose is empty. This is quite easy to gauge, as the sound of the bubbling through muco-pus is quite distinct from the hollow sound of the passage of air through the empty nasal fossa. Then turn the child round and empty the other side. When this has been done breathing exercises may be begun, but even without the breathing exercises this treatment may be enough to cure the adenoids. The mere removal of the irritation of the muco-pus will cause the lymphoid tissue to go down. The mother should be encouraged to see that the nose is emptied thus some four times daily.

It is, however, most remarkable how many children there are who have lost or never learnt how to co-ordinate their muscles that a draught of air may be driven through the nasal fossa. In other words, they cannot blow the nose. They must then be taught to do so. To do so is not easy, and mothers are not keen on it as it savours of bad manners. It is best to do it in three stages. In the first the lungs are filled through the open mouth. In the second the mouth is shut and the tongue placed against the roof. In the third the muscles of the soft palate are relaxed, the head is bent forwards and one nostril is closed with the finger. In this way the child is taught to blow the nose *a la paysanne*, before proceeding to the more polite method with the handkerchief. In learning this the child may cause a considerable mess by scattering the mucous discharge, but unless it learns, other treatment, including operative, is very likely to fail, and once it has learnt it the emptying of the nose and resulting nasal respiration will probably be all that is needed.

One other thing remains. *Adenoids are the result of infection.* If the infection is removed the adenoids will recover. The infection may be in the nose or in the tonsils. For the former a syphon-douche used daily with physiological or hypertonic saline will work wonders. It should be combined with the nose-blowing and breathing exercises that have already been considered, and the treatment may be followed by the instillation of the paraffin mixture that Dr. Poulton advocates for the prevention and treatment of the common cold.

The question of sepsis in the tonsil we shall consider later, but here I would impress upon you that if the tonsils which you remove really are a source of sepsis, the adenoids that are present are probably the result of this sepsis. Therefore, when the tonsils are removed the adenoids should

be left, unless they cause a complete blockage of the nose.

OPERATION

Like other forms of treatment, operations have their day and then they pass. This does not mean that all those that were performed in a former time were useless. It means that we have improved our other methods of treatment or that the conditions for which they are performed are changing. Two operations on the nose and throat have passed and are never done now. These are the removal of the inferior turbinal and the amputation of the uvula. I believe that the operation for the rhinological adenoids will shortly follow them. This idea seems impossible to many who remember the huge number of these operations, going into hundreds of thousands, that have been performed in the last 20 years, and yet it is no more impossible than the idea of treating people without blood-letting must have been to a former generation of our profession.

If by diet and other means we neutralise the disharmonies of the exudative diathesis, if we improve the hygiene of the people, if we treat the after-effects of acute infections of the upper respiratory tract by heliotherapy and by suitable exercises; if we choose our cases carefully so that the tonsils we remove are a source of sepsis, and if we conserve the lymphoid tissue of the upper respiratory tract in those years in which Nature demands its presence—there remain but few cases in which this operation is necessary.

But this is not all. I believe that the conditions that affect the nose and naso-pharynx are changing. Twenty-five years ago nasal obstruction was the problem that faced the rhinologist in a very large number of patients who complained of symptoms in the nose. To-day nasal obstruction is relatively uncommon. Its place has been taken in our clinics by persons having some degree of excess of airway. This condition is easily recognised in the adult, but its early stages can be seen in the youth and in the child. When these early stages are present the undue removal of lymphoid tissue from the naso-pharynx may make the condition worse. In our decision, then, to operate on the rhinological adenoids we must remember the Hippocratic maxim and consider not only what good our treatment may do, but also whether it may do any harm.

(To be continued.)

The Value of Cæcostomy in the Treatment of Ileocæcal Intussusception

By R. P. Rowlands, Esq., O.B.E., M.S.

DURING the last six months I have met two unusual examples of subacute extensive ileocæcal intussusception terminating in acute intestinal obstruction, calling for immediate operation.

The two cases presented certain contrasts and many striking similarities. One of the patients was an old lady who gave a very long history of chronic intermittent intestinal obstruction, which had been very puzzling until intussusception at last demonstrated itself. The other was a female infant who had for seven weeks suffered from recurrent attacks of vomiting, culminating in typical acute intussusception.

No tumour or polyp was discovered as a cause in either case, but extreme mobility of the ascending colon was a striking feature in each case. This mobility, which was due to lack of the normal developmental fusion of the ascending colon to the posterior abdominal wall, appears to be necessary to the formation and rapid development of extensive ileocæcal or cæcal intussusception. In both my cases, the ileocæcal valve presented in the rectum; in the old lady it projected from the anus, simulating prolapse of the rectum.

But the chief object of this communication is to draw attention to some vital points in the treatment of intussusception and particularly to the value of cæcostomy for ileocæcal and cæcal intussusceptions. After the intussusception has been reduced, something should be done to eliminate the well-known risk of recurrence.

Cæcostomy (although it is not even mentioned in the standard works on operative surgery) is a simple, safe and efficient way of doing this; it also adds the great benefits of drainage of the damaged and often paralysed bowel, and gives a ready means of administering abundance of saline liquids and glucose to a patient who is in great need of them and is often unable to retain them when administered either by the mouth or rectum.

I now venture to give accounts of my two cases :—

CASE I.—*Ileocæcal intussusception presenting at the anus; Reduction; Cæcostomy; Recovery.*

Late in the evening of February 26th, 1931, I was called to the country by Dr. A. R. to see Mrs. M., a very thin lady, aged 63, who was suffering from intussusception, causing complete intestinal

obstruction. The patient some time afterwards wrote the following history : " In February, 1930, I had a bad go of colitis (from being exposed in a cold room), also twisted gut, but all through the year till December I was quite well except for some colitis attacks, for which I had to be dieted. Regarding back history, I saw Dr. H. in London in 1931, as our Dr. D. thought there might be an obstruction; however, the consulting physician said the trouble was due to kinks, which had been caused by an umbilical truss worn for 15 years, which he condemned utterly, saying it had perished all the muscles and that the walls were tissue paper in consequence. I did not have an operation, though this was mooted—taking out bits, I believe."

Dr. A. R. first saw Mrs. M. on December 28th, 1930, for pain in the abdomen. She was very distended, had colicky pains with visible distended coils of large intestine full of wind. She had been seen just before she came away from home by her own doctor, who remarked that anyone seeing her for the first time might think she was seriously ill. Her bowels were acting, but her distension was so great that it was difficult to palpate the abdomen well. On one occasion the doctor thought he felt an ill-defined tumour in the transverse colon about 3 inches long. Spasmalgin tablets were given, belladonna fomentations were applied and several enemata were administered.

After giving an opaque meal, X-ray examinations were made on January 30th, the report being that there was evidence of obstruction in the ileocæcal region, with defective filling and displacement of the cæcum very suggestive of intussusception. At that time, the motions were loose and frequent, without aperients or liquid paraffin.

A good deal of blood and mucus were passed. Her medical attendant continued to see her about once a week up to the 23rd of February, when definite signs of intussusception developed. There were frequent attempts to empty the bowels with much tenesmus and prolapse of the bowel from the anus. The intussusception appeared to be reduced by enemata, but soon recurred.

On the 25th the sigmoidoscope was passed, but it would not go further than 8 inches. Fruitless attemps were made to reduce the intussusception bimanually. The patient was moved to a nursing home, where several more enemata failed to act. She became very miserable and restless, and vomited brown offensive material frequently. " Ladders " and peristalsis were noticed upon a very distended abdomen.

At 8.30 p.m. the abdomen was opened by a long right paramedian incision, and a hand passed down into the pelvis soon squeezed the intussusception from the rectum into the descending colon. It was difficult to get it into the transverse colon and extremely difficult to complete the reduction, even after bringing the intussusception forwards and out of the wound. General squeezing forced much bloodstained liquid and clots from between the layers of the telescoped bowel; later the appendix and finally the ileocæcal valve shot out. Long vertical cracks were then seen upon the surface of the cæcum and ascending colon; these were sewn with fine catgut. A valvular cæcostomy was made to drain and to fix the paralysed cæcum, and to allow saline glucose solutions to be introduced; the tube being brought out through a stab wound in the right iliac region. The abdomen was closed in layers, and saline glucose infusions were given per rectum. The operation lasted nearly an hour, but the patient soon rallied. The tube, which drained freely for several days, was removed on the sixth day, and the fistula, which never leaked any fæces, rapidly closed, the patient making a complete and rapid recovery.

CASE II.—*Ileocæcal intussusception extending into the rectum; Reduction; Cæcostomy; Recovery.*

The child's father wrote the following history of the illness :—

" S.P., aged seven months, was progressing satisfactorily until the last week in February, 1931, when she lost her appetite, and passed peculiar chocolate-coloured stools for a few days, then for a day green stools, and then had an attack of vomiting. From this time onwards, every three or four days she would have an attack of either vomiting, relaxed stools, or both, with colicky pains. She would refuse two or three feeds, and then improve rapidly, although she never took as large a feed as before the initial attack. Twice there was a small streak of blood in the stools. Her weight became stationary after an initial drop from 16 to 14½ lb. At one time there was no attack for six days. Occasionally the temperature was a little raised. On April 22nd another attack of vomiting occurred, with two or three loose stools, but instead of ceasing after the usual six or eight hours, it became progressively worse with regular colic, and the muco-hæmorrhagic stools typical of intussusception were noticed on the 23rd of April."

The child was brought to Dr. H. C. Cameron at Guy's Hospital in the afternoon of that day. He found a large swelling in the abdomen having the characteristics of a low, large intussusception, and the presenting point was easily felt from the

anus. The child was admitted under my care and an operation was performed immediately.

Operation.—An incision 3 inches long was made through the middle of the right rectus. A very large, low intussusception was felt. The small intestine was almost empty except for the lower ileum, which was a little distended. The intussusception reached so low down into the rectum that it was difficult to bring it up. It became increasingly difficult to reduce the intussusception from the descending colon to the transverse colon which could not be delivered, and again from the transverse colon to the ascending colon. Gradually this was accomplished, the cæcum and ascending colon were delivered, and the last part of the intussusception was slowly reduced by general compression and gentle kneading. When the appendix appeared and suddenly shot out, the reduction was easily completed. The presenting point seemed to be the wall of the ascending colon near the ileocæcal valve. The cæcum and lower ileum were pendulous and very freely movable. Although there was œdema of the cæcum and ascending colon, the bowel was not in a bad condition, but to prevent a recurrence a valvular cæcostomy was made, the No. 8 catheter used having been passed through a stab wound in the right iliac fossa, and 2 oz. of 5 per cent. glucose were given through the tube soon afterwards.

The cæcostomy was made to prevent a recurrence of the intussusception, to allow liquid nourishment to be given, and to prevent paralytic distension of the bowel. The appendix was normal. No tumour was felt as the cause of the intussusception, but the cæcum was granular on the surface and empty.

The child made a good recovery and rapidly gained weight after the operation.

ETIOLOGY

It has been well said that any sudden, limited, severe peristalsis may cause intussusception of the bowel. Irregular and violent peristalsis may be set up by enteritis or colitis, especially a localised patch of inflammation such as may often form at a Peyer's patch in the lower part of the ileum; and a polyp, papilloma, myoma, lipoma or other submucous growth is particularly liable to cause and form the presenting point of an intussusception.

I have seen several examples of inverted Meckel's diverticulum causing intussusception, and in two of these the diverticulum was felt in the rectum and formed the presenting point of the intussusception.

Carcinoma at the ileocæcal valve or anywhere in the colon, often forming a ring stricture, frequently causes intussusception in elderly patients. I have seen several examples of carcinoma of the pelvic colon which presented in the rectum or at the anus, and in one of these cases the growth was mistaken for carcinoma of the rectum.

Too little attention has been given to undue mobility of the intestine as a predisposing cause of intussusception. Without this undue mobility, it is hard to see how an extensive intussusception can either form or rapidly develop. It is very important to realise this point, because of its essential bearing upon recurrence of intussusception, which is not at all uncommon. There are many instances of recurrence recorded in the literature and most surgeons of experience have seen at least one or two examples. Some patients have been operated upon for intussusception three or four times, therefore it is clear that if the condition of the patient allows the surgeon should endeavour to find and to correct the predisposing cause. In my experience, undue mobility is by far the commonest. It is infinitely more common than the presence of a polyp or other growth in the bowel.

VARIETIES

I do not propose to discuss in detail the many possible varieties of intussusception. The common varieties are :—

1. Ileocæcal, which forms about 75 per cent. of the whole.
2. Ileo-colic.
3. Ileic.
4. Cæcal.

Certain combinations of these are common, for instance, the ileic may become ileocolic. Osler denies the existence of reverse or ascending intussusception, but undoubted instances have been definitely recognised during operation. Reverse intussusception of the distal jejunum into the stomach through a gastrojejunostomy is not uncommon.

SYMPTOMS AND SIGNS

Fortunately, the symptoms and signs of this condition are so definite and striking that there is very little excuse for delay in diagnosis and treatment. Hence operation, which is the only rational treatment, is now generally carried out without delay.

Brief mention may, however, be made of the prominent features. A healthy infant commonly between four and nine months old is suddenly seized with severe abdominal pain causing it to scream and vomit. No normal motions are passed, but considerable amounts of blood and mucus. These attacks recur at frequent intervals during the day; the child refuses its food, and

soon becomes very pale and looks very ill during the attack. In over 60 per cent. of the cases, a sausage-shaped swelling is felt in the abdomen sooner or later, but it is often a mistake to wait for the certain recognition of the swelling. Sometimes the presenting point can be felt in the rectum when no abdominal swelling is discoverable.

The symptoms of chronic intussusception are naturally less acute, perhaps remittent or interremittent, and, consequently, they may be misunderstood as in the cases illustrating this article. Little is said about them in the text-books.

DIAGNOSIS

As already mentioned, the diagnosis is usually easy enough, but certain other conditions are liable to be mistaken for intussusception, and *vice versa*. Several times I have known severe and acute ulcerative colitis, with much bleeding, to be mistaken for intussusception.

Henoch's purpura has not uncommonly been mistaken for intussusception, but in both these conditions the motions definitely contain fæces which are more or less stained with blood, whereas in complete intussusception little or no fæces can be recognised in the stools but only pure blood and slime. With Henoch's purpura there is very often some enlargement of the spleen, and, perhaps, albuminuria. I have known the coexistence of colitis with a large, low right kidney lead to the wrong diagnosis for intussusception. Similarly, a pendulous spleen with a twisted pedicle was mistaken for an intussusception in a baby who passed some blood per rectum, probably as a result of twisting with congestion of the splenic flexure of the colon. The case ended happily after the spleen had been reduced to its natural position and fixed.

TREATMENT

Intussusceptions are either reducible or irreducible, depending chiefly upon the duration of the telescoping, and to some extent on the skill of the surgeon. The reducibility of the intussusception and the results of treatment vary inversely with the delay before operation. Nowhere is early, speedy, accurate and complete operation more desirable or attended with better results.

(*a*) *Reducible intussusception.*—After taking all precautions against shock, a right paramedian incision two or three inches long is made, and the presenting point of the intussusception is recognised and gently pushed back by grasping the receding bowel between the fingers and thumb. The early part of the reduction is easily carried out in this simple way, although there may be some delay in getting the intussusceptum back from the descending colon past the splenic flexure into the transverse colon. The completion of the reduction may be extremely difficult, or even impossible, without lifting the intussusception out of the abdomen so that the manipulations can be carried out accurately with the invaluable aid of sight.

It pays to spend some time compressing the whole mass with the object of reducing the amount of blood in it and also of a serous effusion between its layers, then gentle squeezing and pushing the intussusception towards the entering bowel generally succeeds; the appendix, which is swollen, hinders the reduction, but once it pops out the completion is made easier. Often a collection of serum escapes at the same time. It is important to make quite sure that every bit of the intussusception is reduced, then if the condition of the patient is fair, and time allows, some effort should be made to find and deal with the cause of the intussusception. For instance, a polyp may have to be removed, or, more commonly, a very mobile and pendulous right colon will require fixing. In most cases of ileocæcal or cæcal intussusception, or ileocolic and enteric or colic intussusception, pleating and thus shortening a long mesentery parallel to the axis of the bowel and without endangering its blood vessels is an excellent method, the three-ply of mesentery also acting as a splint to the bowel and thus preventing the recurrence.

Various methods have been used to fix the mobile ascending colon, such as suturing it to the peritoneum of the abdominal wall; but this may be difficult and tedious and may carry some risk of kinking the bowel with formation of peritoneal pouches. It is simpler, speedier, and safer to perform a valvular cæcostomy after passing a rubber tube into the abdomen through a stab wound a little internal to the anterior superior spine. The tube is fixed into the cæcum in an airtight manner by a single suture piercing the edges of the small cæcal incision and two purse-string sutures invaginating the cæcum, and thus making a valvular cæcostomy. The cæcum is then drawn up snugly against the anterior abdominal wall without need of any suture, but the rubber tube is fixed to the skin by a suture which pierces the skin and is tied round the tube. The tube is left in until it becomes loose, after about ten days. By this time the cæcum will have become firmly adherent, making it very difficult for a cæcal or ileocæcal intussusception to recur; but the tube has other very important functions—it allows the immediate administration of liquids

and liquid nourishment in the form of glucose, and also drains a cæcum which often has been considerably damaged and is more or less paralysed. Paralytic distension is thus prevented and the prognosis is considerably improved. I have been unable to find that anyone has previously recommended cæcostomy in these cases.

Many years ago, C. B. Keetley[1] used and advocated appendicostomy to prevent the recurrence of intussusception, and I and many others have frequently used cæcostomy to prevent recurrence of volvulus of the cæcum and to drain the distended bowel, and I am sure that it has greatly improved the chances of the patient.

(*b*) *Irreducible intussusception.*—Here prevention is better than cure, for irreducible intussusceptions are notoriously fatal. When, as a result of delay, such a condition is met: (1) Resection generally offers the best chance of success. As a rule I close the resulting open end of the colon and implant the end of the ileum into the large bowel a little above the blind extremity of the latter—this makes an excellent, quick and safe anastomosis; (2) Resection of the intussusceptum after Jessett's method is applicable sometimes, and so is resection with the formation of a temporary lateral enterostomy. Short circuiting, without resection, is occasionally applicable, and even advisable when the intussusception is chronic, irreducible, and when there is no evidence or fear of gangrene.

PROGNOSIS

The results of operation for intussusception have improved very greatly in recent years. Gradually it has dawned upon all concerned that the sooner, quicker and better the operation is performed the greater the chances of success. The need of resection should get less and less. An operation for intussusception undertaken in time by a good surgeon should not take more than from 10 to 15 minutes, and should not leave the patient in a condition of shock. The mortality from the operation should not be more than 10 per cent., and is often much less; this is in striking contrast to the mortality of intestinal obstruction as a whole, which still keeps up to about 40 per cent., owing to delay in diagnosis or treatment.

1. Brit. Med. Journ., 1905, II, 863.

The Dissecting Room

By C. Frazer Brockington, Esq.

IN Liverpool, in the year 1894, a ship's captain had his home where he spent the short intervals between his voyages with his wife and daughter. In common with most sea-faring men he had very strict views on the correct way to bring up a daughter. When she was still a baby he had tattooed on her back :—

> "He who dishonours Virginia dishonours himself, and in the same place after death shall you long regret."

Superstitiously he supposed that this would be as a talisman to guard her honour. It is characteristic of the old captain that in his fixed puritanical views any departure from the strict path of virtue should determine eternal damnation, for it is to this, no doubt, that he referred. If it was his aim that she should never meet any men he succeeded admirably. Virginia, by the time that she was 24 years of age, knew little or nothing of the ways of the world.

Quite unexpectedly this year the captain brought home with him the doctor from the ship, a young man for whom he had taken great affection. Dr. Southwark was no ordinary ship's surgeon. He had been a man with an exceptional medical career, becoming at the early age of 26 a registrar at a big London hospital, when some fears for his health had compelled him to give up his post and take to the sea. For three years he had been at sea, and now, quite restored to health, was about to return to hospital.

The old ship's captain's leave soon expired and he returned to his ship, but the doctor stayed on at the request of Virginia and her mother. From the first there had sprung up between the two young people a friendship which the mother was only too pleased to see, since Virginia's pleasureless existence had always been for her a source of sorrow. The stay lengthened and the friendship ripened. There was soon no doubt that Virginia was deeply in love, and that, had the old ship's captain but known, his talisman had proved of little value.

The doctor, being offered the post of lecturer in the anatomy school, returned to hospital and very soon forgot the ship's captain's daughter. As the years passed he achieved considerable fame in his lectureship, for there was little doubt that he possessed exceptional ability. When still a young man he was appointed to the anatomy professorship in the University of Cambridge, a

post which he successfully held for the next 30 years of his life.

It is now July in the year 1929, and the weather is hot and sultry. The few undergraduates who are in residence for the Long Vacation term give an air of life which is absent in the vacations, and serve to enhance the attractiveness of the town without creating that hurrying mass of bicycles and cars which, in the other terms of the year, prevents the visitor from seeing all that he should see.

Anyone who visits Cambridge at this time of the year and chances to turn his steps down Corn Exchange Street will be impressed by the unpleasant nature of the smells that pervade this street. If he is wise he will not investigate the matter further, for the odour which is offending his nostrils has its origin in the dissecting rooms of the anatomy schools. It takes little imagination to realise that in these rooms above his head there will be no such salutary dilution of the odour as is effected in the free-flowing current of air below. Yet it is here that many students and demonstrators spend the greater part of their working hours throughout the sunny weeks of this July term.

On a day in the second week of term two youths are standing beside the row of lead-lined boxes into which they must delve to find their part. Neither has quite accustomed himself to this unpleasant procedure, and each is rather hoping that the other will do the delving. They are buttoning up their white coats, thereby concealing their hesitation. Finally Martin lifts the lid.

"I suppose we must be getting on with the arm, Geoffrey. With any luck we should get signed up to-day. Do you think we can risk Appy again after he turned us down the last time?"

Geoffrey holds the lid while Martin dips his bare arm into the slippery mass of human limbs that fills the box to the brim.

"You know, Martin, if we didn't get here so early we shouldn't have such an unpleasant search. As usual, the beastly thing will be right at the bottom."

Martin brings up a dripping semi-dissected arm that, with the completion of the first dissection, they had severed from their subject. The subject, whose right arm Martin now holds over the box while he shakes off the drips, lies stretched on a bench in the middle of the room. As Martin and Geoffrey have robbed her of her one arm, so three other pairs of students have despoiled her of her other limbs. The scalp, removed to allow the vault of the skull to be sawn off in search of the brain, now lies over her features.

With a glance at their subject, who has now no further interest for them, and a remark that the two fellows on the thorax have made pretty good progress and should soon be working on the back, they carry their treasure, at arm's length to avoid the drips, over to a secluded corner where they can work in peace.

In the meantime the room has been filling up. A number of young men are untying their cases of dissecting instruments on the benches beside their subjects. Others thread their way between the rows of naked and mutilated human remains carrying their parts, maybe an arm or maybe a leg, dripping grease and formalin from their detached and drooping muscles.

Professor Southwark, whom Martin referred to as "Appy," is helping to turn over a limbless trunk so that the two students, whom he has just signed up on the front, may proceed to the dissection of the back. That he should lend a hand in this way is typical of this kindly old professor, grown old in the teaching of anatomy. Some years have passed since he retired from the lectureship, but he continues to frequent the "meat shops" as a demonstrator.

It is common knowledge that the old professor has bequeathed his body to be dissected. The knowledge that one day after old John has successfully injected his circulatory system with red dye he will take his place among these rows of bodies, gives him a feeling of affection for this unpleasant spot. At least this will relieve them of the trouble of finding one of their subjects, the search for which becomes so increasingly difficult. Sometimes the old professor wonders when the time will come for him to take his place among these derelicts from the Poor Law Institutions all over the country, and mingle his severed limbs with theirs in the lead-lined formalin boxes.

From their corner Martin is watching Appy as he helps in the turning over of the subject. "Look at Appy, Geoffrey; he really is a delightful old lad. He'll probably do the whole dissection for them."

The professor, with his polite "Gentlemen, may I give you a start. I always find it most difficult to get out the cutaneous nerves," had taken a proffered scalpel and was preparing to make an incision when he paused. Had you watched him carefully you would have seen him give a start, pause and stare at the point where his knife was about to enter the skin. For perhaps a minute he stared, rigid and motionless, and then very gently collapsed on the floor. The whole room rushed to his assistance. Someone was loosening his collar, another was feeling his pulse, when the old gentleman opened his eyes.

"I beg your pardon, gentlemen, I was a little overcome by the heat." They helped him to his feet and out into the fresh air.

"What on earth happened to the old chap?" asked Martin of one of the two students whom Appy had been assisting.

"Heaven knows. He was staring at this tattoo mark. Dashed if I can see what it says. Oh yes, I can though. . . . It looks like, 'He who dishonours Virginia dishonours himself,' and then something about 'the same place after death.'"

He looked up from the back. "I say, that's curious. I wonder if the old girl was dishonoured."

Reviews

Diseases of the Gums and Oral Mucous Membrane. By SIR KENNETH GOADBY. Oxford University Publications, 1931. 514 pages, with 16 Colour Plates, 145 Illustrations and 18 Tables. *Price* £2 2s.

THIS is the fourth edition of "Diseases of the Gums and Oral Mucous Membrane" to appear within the short space of nine years. The plan of the work has undergone little change since it first came out, but the change of attitude towards the theory of local infection and our increased knowledge of the "deficiency diseases" have led to the expansion of that part of the book which deals with them.

Several excellent new coloured plates and many new illustrations have been included, as well as an appendix of bacteriological methods applicable to the study of mouth infections. Little has been added to our knowledge of the clinical varieties of gingivitis since the appearance of the last edition, but it is interesting to find a short account of the chief features of primary generalised hypertrophy of the gums, a rare condition in which delayed dentition, hypertrophy of the gums and lips, with or without hypertrichiasis, occurs; as to whether it is a "chronic infective fibroma" or due to some endocrine imbalance is not decided, and it appears that surgical removal of the hypertrophied tissue is still the only method of treatment.

The bacteriology of dental caries is given in some detail, and the list of organisms found in association with caries seems even more impressive than when read in the dental surgery text-books. The author strongly inclines to the view that both caries and pyorrhœa are fundamentally "deficiency diseases," though the actual exciting causes are in dispute. It is interesting to note that in earlier editions he has strongly stressed the possibility of vitamin deficiency underlying some forms of periodontitis, and he has now brought forward fresh illustrations from the work of Professor and Mrs. Mellanby and others. Indeed, the present trend of opinion upholds the attitude the author adopted in 1922.

In the chapter on "Diseases originating from Mouth Infections" is a résumé of the present position of the theory of focal sepsis, followed by a consideration on the part played by oral sepsis in other body conditions. In collaboration with Dr. Strickland Goodall an account has been compiled of a series of cases of "toxic heart," or neuromuscular impairment from toxic origin. For purposes of comparison a series of electrocardiograms from other cases of poisoning (digitalis, tobacco, etc.) has been included. At this point one may quote from his summing up: "The recent advances of methods of diagnosis have brought into strong relief the question of focal infection and peri-apical abscesses, and that the diagnosis of the 'infected teeth' has frequently been made on the slender evidence of questionable radiograms."

Then the author deals in turn with the ulcerations and special disease of the mouth and gums, and, together with the account of diseases with oral symptoms, these chapters form the most valuable part of the book. Apart from the exanthemata, the oral conditions seen in sprue and actinomycosis, etc., together with certain skin diseases, and poisonings such as bismuth, mercury and lead are included in a concise chapter. The illustration showing the distribution of pigmentation, and the Burtonian line in lead poisoning, in relation to tartar deposits, is very good. The account of the diseases of the tongue is excellent, but it is curious and instructive to find that the description of geographical tongue is confined to a rare condition in which formation of rings occurs over the surface of the dorsum of the tongue. The accompanying illustration is striking, but the description is somewhat vague and involved.

The common mouth bacteria are described in some detail, and throughout the book considerable attention has been given to the bacteriology of the various diseases described. The recent work on the classification of the streptococci is critically discussed, but for the rest, stress is laid on certain minor distinctions in the various mouth organisms,

some of which are given separate identity on slender grounds, for instance, the organism described as strepto-bacillus malæ (Fig. 64, p.145) appears typical of freshly isolated streptococcus viridans. Indeed, the author says it gives the reactions of str. ignavus.

In discussing the bacteriology of the mouth no reference has been made to the work of Mr. Arthur Bulleid and other workers on the subject of leptothrix buccalis, or to the former's work on apical infection.

The appendix contains an account of certain standard laboratory methods, in addition to some in use in the author's laboratory, and exception must be taken to at least one of these. The author suggests that when it is inconvenient to culture immediately from a tooth, or when it is necessary to send it through the post, it should be dropped into a tube of melted agar, which can later be reheated for the purpose of taking sub-cultures. There are several objections to this :—

1. The technique involved is open to many errors—for example, overheating the agar and killing the more delicate streptococci, and increasing the chance that the extraneous organisms may overgrow the others.

2. It demands experience of bacteriological methods on the part of the practitioner.

3. The method of fixing the crown of the tooth into plasticine contained in a sterile petri dish is simple, and has given satisfaction for postal purposes for many years.

Though much of the descriptive matter relating to ætiology and pathology of some of the conditions described is vague, the general plan and production of the book as a whole is very good, and well repays time spent in careful reading and annotation. For the average student the Library copy is, perhaps, the wiser solution.

Encephalitis Lethargica, Its Sequelæ and Treatment. By CONSTANTINO VON ECONOMO.

THIS book, which is a translation by Dr. K. O. Newman from the original German, has been accomplished with admirable success, and he has steered a straight course between the Scylla of literal translation and the Charybdis of free translation.

The first chapters of the book are concerned with an interesting history of encephalitis lethargica, but we feel that too much space has been devoted to an unnecessary controversy as to the discovery and naming of the disease.

The ætiology and problem of the virus of encephalitis lethargica have been well and soundly tackled, and much light is shed as to our exact position in these matters.

The last part of the book is devoted to the sequelæ of the disease, a portion of which, to our mind, is the most important, as it is with this stage of the disease that we are most familiar and in which we are called upon to diagnose, prognose and treat.

The whole book is well bound and written in a clear print on good paper, accompanied by many fine illustrations of the text.

Crossword Solution

T	H	O	M	A	S	G	U	Y	A	C	T	S
C	A	V	A	A	N	A	T	O	M	Y	R	E
A	B	E	R	R	A	N	T	E	N	S	U	E
M	I	R	R	O	R	G	O	N	E	T	E	A
O	T	I	O	S	E	R	R	A	S	H	E	S
M	S	S	W	E	D	E	N	N	I	P	P	Y
I	N	T	I	M	A	N	O	T	A	B	L	E
L	E	A	V	E	N	E	T	H	E	R	A	N
E	R	R	O	R	C	H	L	O	R	A	T	E
H	A	I	R	I	E	O	I	L	M	I	E	N
T	I	N	Y	T	S	E	P	S	O	N	S	Y

Nursing News

THE following nurses were successful in passing the May Final State Examination, and their names have been entered on the General Part of the State Register :—

J. M. Akester
M. Birdsall
C. A. Burnley
C. Chick
K. M. Coles
J. Clarke
A. L. Perkins
D. Payne
B. C. Roberts
M. E. Richardson
K. M. Seery
H. S. E. Smith
L. de la Court
M. F. Davis
K. Ennis
S. Evans
M. Griffith
D. M. Giggins
M. Hutton
O. P. Mull
M. E. Nicholas
D. Nicholson
V. Speake
P. E. Tollitt
A. G. Tillett
H. Whale
G. Wright
P. Wilson
J. H. Weedon
P. Andrews
F. Williams

Hospital Information, etc.

Post-Graduate Course

IT is proposed to hold an intensive course of Post-Graduate Demonstrations and Clinics for old Guy's men during the week in which the Biennial Dinner will be held, *i.e.*, October 12th to 18th. The Course will cover a period of two days, and will be held if 20 or more indicate their intention to attend.

Old Guy's men who would like to take advantage of such a course are asked to communicate with the Dean as soon as possible, stating the two days which would be most convenient to them, i.e., Thursday and Friday, Friday and Saturday, or Saturday and Sunday. The Course will be given on the two days which are convenient to the largest number of applicants. No fee will be charged. (N.B.—The Biennial Dinner will be held on Friday, October 16th.)

Dental Notice

Applications are invited for the following appointments ; duties to commence on October 1st, 1931 :—

Dental House Surgeon: Conservation Room (2); Prosthetic Department (1).

Assistant Dental House Surgeon : Conservation Room (4) ; Children's Department (1).

Applications should be lodged in the Medical School Office, not later than September 4th, 1931.

T. B. JOHNSTON, *Dean*

Pass List

LONDON UNIVERSITY.
FIRST EXAMINATION FOR MEDICAL DEGREES. July, 1931.

O. B. Alakija
G. L. Burgess
J. E. Elliott
H. R. W. Franklin
D. L. V. Fraser
D. F. Freebody
H. R. S. Harley
B. W. Hunt
S. Jackson
H. M. Kelsey
F. R. Kilpatrick
F. H. Lee
C. A. Lillicrap
F. L. E. Musgrove
D. M. Paterson
R. F. Pusey
E. Sayle
G. N. Wright

Papers by Guy's Men

M. Campbell. Complete and partial heart-block during an attack of rheumatic fever. *Lancet*, 1931, ii, 18.

J. N. Doubleday. Health of dentist. *Dent. Rec.*, 1931, li, 398.

T. B. Layton. Dysphagia caused by inflammatory swelling of larynx. *Proc. R.S.M.*, 1931, xxiv, 1210.

W. A. Mill. Dysphagia associated with anæmia. *Proc. R.S.M.*, 1931, xxiv, 1210. (1) Dysphagia secondary to carcinoma of larynx ; (2) Postcricoid carcinoma treated with radium (specimen). *Proc. R.S.M.*, 1931, xxiv, 1212.

G. T. Mullally. Clutton's joints. *Proc. R.S.M.*, 1931, xxiv, 1182.

W. H. Ogilvie. Preservation of ileocæcal sphincter in resection of right half of colon. *Brit. J. Surg.*, 1931, xix, 8.

G. H. Oriel. Some observations on pathogenesis of eczema of internal origin and other allergic diseases.

Changes of Address

Ed. Billing, M.A., The White Cottage, Finchampstead, Berks. *Eversley* 12.

Walter Allan, Orielton, 42, St. Andrew's Road, Southsea. *Portsmouth* 6002.

Marriages

WOOD—SHERRARD.—On August 10th, 1931, at Brighton, W. R. J. Wood, L.D.S. (Eng.), to Marjorie Evelyn Sherrard, daughter of Major L. A. Sherrard.

CUNINGHAM—DAVIS.—On July 8th, 1931, at Southwark Cathedral by the Rev. R. L. Hodson, Rural Dean and Rector of Wolverhampton, Ronald William Cuningham, M.A., M.B. (Cantab.), elder son of Dr. and Mrs. Cuningham, Londonderry, to Beatrice Mary (Molly), eldest daughter of the late H. W. Davis and Mrs. Davis, of Hitchin.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

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PASSIM

A PERUSAL of the Treasurer's Report for the year 1930 discloses some interesting and, perhaps, rather alarming facts concerning especially the present financial position of the Hospital. When, in 1724, Thomas Guy founded and endowed Guy's with his own personal wealth, he laid down a plan by which the Hospital should always be served by a strong and influential Board of Control—and through his wisdom and foresight the administration of the Hospital was successfully carried out for 200 years by a series of men of business and affairs. Indeed, Guy's is almost unique as an example of the administration of a charitable institution. But it was only inevitable that the growth of scientific discovery and research in the latter part of the nineteenth and early twentieth centuries, together with the increase of the population, should throw a larger demand on the services of the hospitals. And so, when 30 years ago Guy's became a leading scientific hospital in a new scientific era, it became necessary to review the financial position.

It is fortunate for Guy's that at this stage the late King Edward, then Prince of Wales, realised the urgent need for re-endowment, and through his influence and personal interest the Hospital was again placed on a sound financial basis. Since then, however, matters have not improved. Expenditure, entailed by continual fresh developments in the profession, has increased, whereas income has remained almost stationary. Moreover, the war has disturbed the financial position of the whole world—and so the Hospital again finds itself in its present precarious condition, with an excess of expenditure over income of £20,000.

The causes operating in the production of this deficit are many. Modern methods, requiring new apparatus and appliances, structural changes and increase of staff, have all contributed in producing an ever-increasing rise in expenditure, which cannot cease without the reduction in scale of the Hospital's activities. Moreover, many parts of the Hospital have, after years of service, required repair or renewal. Statistics show no evidence of extravagance. The number of in-patients for 1930 was 12,249—an increase of four to five hundred over the figures for 1929. The average stay of each patient has been reduced from eighteen to seventeen and a half days, and the average number of beds in daily occupation has been raised from 553 to 563. These facts in themselves are sufficient proof of efficient medical attention and organisation.

The Governors, realising that the original objects of the Hospital's founder, Thomas Guy, and the traditions set up in the last 200 years cannot be carried on without immediate support, set forth in the Annual Report an urgent plea for charitable help. At present less than one-third of the annual expenditure is covered by endowments. Receipts from patients increase, but are small in amount. Voluntary gifts remain almost stationary. The Hospital remains dependent on the generosity of the rich for its continued service to the sick poor in the future.

▭

OF recent years there has been a very laudable attempt on the part of the authorities concerned to raise the prestige of the infirmaries in the eyes of the public in general, and more particularly of those from whom the majority of the inmates are derived. The success of these efforts has been noticeable to anyone who has had to deal with hospital out-patients, even during so short a period as the last two or three years. Formerly the mention of the word "infirmary" caused

dismay to be written on the patient's face, and was, very often, the prelude to the signing of the Refusal Book. One is now struck by the absence of the above distressing features, and many patients come up and ask to be sent to their favourite institutions. The London County Council, under the Local Government Act, 1929, has taken control of the Poor Law infirmaries. In their wisdom they have realised that the old associations of the word " infirmary " are bound to linger, and they have substituted the term " municipal hospital " for infirmary and workhouse. Accordingly, we are to be furnished with a new " Infirmary Book," with the necessary change in wording.

Thus the sympathetic house-officer who, in the past, out of consideration for the feelings of the more sensitive of the Borough patients, deleted the two offending words before handing them the slip, is relieved of one small duty. This relief, unfortunately, is far out-balanced by the new and arduous task imposed upon him under the new regulations. Having taken the patient's name and address, he must now hurry to the new map, placed in all prominence on the surgery wall. Then ensue rapid calculations as to the relative distances between the patient's home and the surrounding L.C.C. hospitals. Having convinced himself of the propinquity of one particular hospital, his task is not ended ; in fact, scarcely begun. It remains for him personally to convince the Medical Superintendent concerned that his (the House Officer's) geometric calculations are not at fault.

It is indeed a moving sight that meets the eye when one passes through the Surgery on a busy afternoon. Here, in the porter's lodge, sits the Out-Patients' Officer with the telephone receiver in his hand and a harassed look on his face. On his right hand he sees the ever-increasing hordes of anxious mothers and sick babies, on his left ambulances discharging their maimed contents. Nor dare he leave his post for one moment during his three-stage telephonic communication, lest he should miss the long-awaited omnipotent voice which bids him " Send it along ! "

We cannot help feeling that the clause in the new regulations which decrees that the House Officer himself must ring up the Medical Superintendent places a rather unnecessary burden on an already fully-occupied existence.

The Lymphoid Tissue of the Upper Respiratory Tract

A Clinical Lecture by T. B. Layton, Esq., D.S.O., M.S.

(*Continued*)

I—ADENOIDS (*continued*)

Otological Adenoids

IN my first lecture I said that it was the otological adenoids that caused deafness, and that this was the only symptom for which they should be removed.

This statement may seem surprising in the light of the large number of operations which are done upon the lymphoid tissue of the naso-pharynx in children with chronic suppurative otitis media. And yet I believe it to be true. The history of otology for the last 30 years may almost be summed up in the statement that operations upon the lymphoid tissue of the upper respiratory tract have failed to prove an efficient treatment for this type of middle ear disease. It is true that just occasionally a case will clear up after the removal of tonsils which are undoubtedly septic, and that more rarely one will recover as a result of operation on the otological adenoids. The cases in which improvement occurs are those in which the lymphoid tissue obstructs the opening of the Eustachian tube. In such cases there is a high degree of deafness with the otitis media. Yet the fact remains that the routine removal of tonsils and adenoids for otitis media has proved a failure. One may go further and say that the operation as practised to-day frequently makes the condition worse.

This is due to the fact that there is a certain school of operators who urge that whenever the tonsil is removed the mass of lymphoid tissue running down from the bottom of that towards the tongue (the so-called lingual prolongation) must also be taken away, and they go so far in certain cases to extend their exenteration of the lymphoid tissue on to the base of the tongue itself.

Never was there a greater fallacy. The tonsil should never be removed because it is enlarged ; it should be removed because it is a source of sepsis, and this sepsis is associated with changes deep in the tonsillar crypts. Now it is very seldom that any crypts of the nature of those found in the faucial tonsil are present in the lingual tonsil. Therefore its removal cannot remove a source of sepsis, and if it is merely hypertrophied it means that Nature demands its

presence, and that so far from being removed it should be conserved. With the tonsils rhinological adenoids are often removed; the result is that there are thousands of children and young adults to-day suffering from the hideous efficiency of the modern operating surgeon. The only lymphoid tissue of the upper respiratory tract that remains untouched is that which surrounds the openings of the Eustachian tubes, and hypertrophy this lymphoid tissue must when all other is lost. Nature demands lymphoid tissue in the upper respiratory tracts of the young; but she acts blindly, and when all the rest is gone she is unable to discriminate whether an enlargement of the mass that remains will cause an obstruction of the Eustachian tube or not. We may sum up by saying that the chief treatment of the otological adenoids in suppurative disease of the middle ear cleft is to prevent their development by the conservation of the other lymphoid tissue of the upper respiratory tract.

The same is true of that other lesion which is associated with this type of adenoids. This is also due to an obstruction of the Eustachian tubes. In its relation to otological adenoids it differs from suppurative otitis media in that it is due to the development of these adenoids, whereas in the inflammation of the middle ear cleft both the adenoids and the inflammation are a result or a part of a primary inflammation of the naso-pharynx.

The deafness associated with obstruction of the Eustachian tube by adenoids is probably primarily due to an absorption of the air in the middle ear cleft with a resultant indrawing of the drumhead and loss of mobility of the ossicles. Later inflammatory or degenerative changes in the soft tissues of the middle ear cause the deafness to become permanent, and the restoration of a free passage of air through the tube will no longer result in improvement.

Diagnosis

It is very difficult to know whether a child is deaf. At this age there is such a power of switching off the mind from anything unattractive that many a school teacher has thought a child cannot hear when the real trouble has been a failure on the part of the teacher to keep him interested. In the type of deafness under discussion there are physical signs on the drumheads that confirm the suspicion that the child is deaf. These physical signs are those of retraction of the drumhead and a certain pinkness.

Two of the physical signs of retraction of the drumhead are difficult to estimate in children. These are a foreshortening of the handle of the malleus and a diminution of the angle which this makes with the posterior fold of the drumhead. They are difficult to estimate because in each case one is attempting to assess a dimension that varies from some normal which is itself a variable factor. The third physical sign is, however, easy to appreciate. This is some change in the cone of light. Normally this appears as an isosceles triangle having its apex at the tip of the handle of the malleus and its base parallel with, but not quite touching, the margin of the drumhead. Any divergence from this shape such as a retraction of the apex from the malleus, a sub-division of the triangle, or a distortion of its two equal sides indicates retraction. The pinkness of the drumhead in Eustachian obstruction differs from that of acute otitis media and from that associated with oto-sclerosis both in situation and in colour. It has a less delicate tint than that of the oto-sclerosis, a less livid one than that of acute otitis media. Whereas the last appears in the postero-superior quadrant and that of oto-sclerosis behind the handle just below the posterior fold, the pinkness of Eustachian obstruction is seen lower down below and behind the tip of the handle of the malleus and posterior to the altered cone of light.

When this discoloration is seen with evidence of retraction of the drumhead in a child who appears to be deaf treatment is necessary.

Treatment

Again this treatment is not merely operative. All those other means of treatment which have been described under the rhinological adenoids must be employed, and before resorting to operation two other considerations must be weighed.

The first is whether the changes around the opening of the Eustachian tube may be due to a mild inflammation associated with a large airway and incipient atrophic rhinitis rather than an overgrowth of the lymphoid tissue secondary to recurrent infections. This condition may be suspected by anterior rhinoscopy in the way already described. It is usually associated with a deficiency of lymphoid tissue and the conservancy of this is all the more important. The application of liquid glucose and glycerine (1 : 3) will often cause an improvement.

The second consideration is whether the tonsils should be removed as well. As adenoids are the result of infection, if the tonsils are undoubtedly a source of infection they should be removed, but as the conservation of other masses of lymphoid tissue in the neighbourhood is the chief treatment for otological adenoids by preventing their development the removal of the tonsils should

not be advised lightly. On the other hand, it is not infrequent that the upper pole of the tonsil may be causing the obstruction rather than adenoids. This part of the tonsil is touching the tip of the Eustachian tube except for the interposition of the fold of mucous membrane which forms the posterior pillar of the fauces, and if it enlarges up into the depths of the soft palate it will close the opening of the tube. Such a tonsil is not the large one of tradition which grows out into the lumen of the fauces and from which the pillars slip as it grows. Rather does it appear at first to be a small tonsil underneath the anterior pillar; but if the child is made to retch an enlarged upper end is seen under the anterior pillar burrowing up into the lateral portion of the soft palate.

When it is decided to remove the tonsils at the time of the operation for otological adenoids it is most important to remove the tonsil only, the lymphoid tissue below it and on the base of the tongue should be rigidly conserved; and at the same time the rhinological adenoids should be left or only a minimal amount removed. If these things be not done there is a great possibility that the otological adenoids will recur with a recurrence of the ear symptoms to a worse degree than the original.

II—TONSILS

We turn now to the faucial tonsils. It is unfortunate that the pathological nomenclature with regard to these has remained as loose as it is with regard to the naso-pharyngeal one. Clarity of thought has been prevented thereby, for no one nowadays should ever remove the tonsils merely because they are enlarged. What, then, is our concept of pathology which has replaced that of hypertrophy? Let us return to the infant or young child combating the first invasions of micro-organisms with which it comes in contact.

We have learnt how the brunt of these invasions is borne by the structures of the upper respiratory tract, and how of these structures the lymphoid tissue becomes most noticeably involved as it increases in size. We have also learnt that in the naso-pharynx it is this increase in size that constitutes the pathological lesion in that it causes obstruction. With the faucial tonsils this is not so. It is the rarest thing for them to be so big that they are actually causing mechanical obstruction, and when it does happen it is usually the result of some general condition either amenable to medical treatment as with the exudative diathesis, or not so, as with the leucæmias.

Under ordinary circumstances the increase of lymphoid tissue is the result of infection in the same way as it is in the naso-pharynx, and therefore the enlarged faucial tonsil should be conserved unless some further change has occurred in it. This further change is when the organisms that have been inspired from droplet infection take up their abode in the tonsil and thence from time to time pass out again to cause acute infections of the upper respiratory tract, or into the blood-stream to cause distal lesions all over the body. The tonsils then have become a *source of sepsis*, or are said to be *foci of sepsis*. It is this concept of foccal sepsis which dominates medicine to-day and which makes so important the decision as to whether tonsils should be removed or not.

It is the residence of the infecting organisms within the tonsil that is the pathological factor; it is not any change within the tissue of the tonsil itself. If there is no evidence that harmful organisms reside within the tonsil there is no indication to remove them; if there is such evidence there is only an indication to remove them if the harm these organisms are doing is greater than the need of the body for the lymphoid tissue that is to be removed, and if the good the operation will do outweighs the risk, the pain and the unpleasantness to which the patient must be subject. It is all a matter of evidence, and the evidence may be considered under these three heads—

(*a*) *Are the tonsils a source of sepsis*?

Under this head the evidence may be divided into two: the history of the past few years, and the appearance of the tonsils when they are not inflamed.

If there is evidence that the patient has suffered from acute follicular tonsillitis three times in a year the indication for the removal of the tonsils is clear, and when this evidence is not forthcoming it is never certain that the tonsils are a source of sepsis.

This history of what has happened to the patient in the past is of far greater importance than the appearance of the tonsils at any given time. Often it is obtained as the result of observation by some medical man; but at other times it must be gleaned from the story given by the patient, who will usually give it by saying that he or she has suffered from attacks of sore throat. There are two possible pitfalls in this history. On cross-examination it may be found that the "sore throats" are transient sensations continuously present or there for an hour or so after the patient awakes; alternately, they may be the result of droplet infection as a result of the patient being exposed to this by his or her occupation. This second pitfall is especially common in children. Neither of these conditions affords any indication for the removal of tonsils.

There is a certain appearance of the tonsils which suggests that there are organisms residing deep within the crypts. This appearance often accompanies the history of follicular tonsillitis, but not necessarily so. It is important to remember that the history without the appearance is a stronger indication for operation than is the appearance without the history.

The key-word to this appearance is "irregularity," and the changes seen may be divided into those which indicate a destruction of the lymphoid tissue and those which indicate there is some slight chronic inflammation present deep in the tonsillar crypts. Needless to say the latter appearances are more important than the former, which merely mean there has been an attack by micro-organisms. This may all have happened at one invasion, as in an attack of scarlet fever, and the organisms may have all been killed as the patient recovers from the acute attack.

Irregularity of contour and of surface then mean that lymphoid tissue has been eaten away. Normally, the tonsil (Fr., *amygdale*) closely resembles the almond nut with a regular contour larger below than above and a number of small pits regularly distributed over the surface. At the tip of the tonsils is the tonsillar fossa, a deep channel into the substance of the gland, and into this channel open other crypts. Hence the greatest destruction occurs at the upper end of the tonsil, as there are more crypts there per unit of volume, and the irregularity of contour and of surface appears as a deep excavation just below the upper pole. A further result of destruction is the replacement of lymphoid by fibrous tissue, and this shows itself as an irregularity of colour from white strands coursing across the lower pole of the tonsil in between the openings of the various crypts.

The appearances that indicate some slight chronic inflammation deep in the tonsillar crypts are an irregularity in the size, shape and distribution of the openings of these crypts and an irregularity of the colour of the mucous membrane around these openings. Some of the openings of the crypts become larger and more patulous than others and than is normal. From local hypertrophy of the lymphoid tissue they become irregularly distributed, and local hypertrophy within the crypts causes the openings of these to become crescentic; sometimes these masses may even herniate out of the openings and appear as polypoid masses on the surface of the tonsils. Irregularity of the colour of the mucous membrane takes the form of pink, red, or even purple rings around the openings of the crypts. These rings are the inflamed mucous membranes of the crypts which have begun to prolapse out through their patulous openings. In the centre of each can sometimes be seen a white point which indicates that there is a mass of secretion within the crypt.

In addition, enlarged vessels may add to the irregularity of colour by coursing across the surface of the tonsils. These vessels are not direct evidence of sepsis within the tonsil, but they only appear on the tonsil that has often been inflamed.

The appearances just described are those seen in the tonsil which is a source of sepsis in the child or adolescent; they are the same in the adult when the tonsil remains large at this age. At other times in the adult the appearances are somewhat different. The surface of the tonsil is flat and sometimes looks as if it had been cut to this shape. It has a glistening appearance and seems to be covered with a thin film of secretion. Over this surface the crypts are distributed and show the irregularities of colour around their surfaces, but instead of these being large and irregular they are small and almost pin-point from previous ulceration of mucous membrane at this region. The small tonsil tucked beneath the anterior pillar with widely open crypts and moveable over the deeper structures would not appear to be one that is often a source of sepsis.

Squeezing the tonsil and observing the secretion which exudes therefrom is an examination that is often made, but there is not much to be gained from it. When true pus is squeezed from the tonsillar fossa it is almost certain that the tonsils are a source of sepsis. But to squeeze true pus from a tonsil is very rare. It is done in my clinic of 4,000 cases about once a year. It is easy to cause a drop of secretion to appear by squeezing a tonsil; the same may be done from any part of the pharynx, and it is easy to find white cells within the secretion for the tonsil is made of such cells, but unless the material squeezed out is true clinical pus, it means nothing as to tonsillar sepsis.

Bacteriological evidence is very occasionally of use. To grow a hæmolytic streptococcus from a tonsil on a single occasion means nothing, but if it can be consecutively obtained from the depths of the crypts on several occasions over a period of a month it may be assumed that it is permanently there and that the tonsil is a site of sepsis.

(*b*) *Is the harm these organisms are doing greater than the need of the body for the lymphoid tissue that it is proposed to remove?*

This is the crux of the problem in children. *Children need their lymphoid tissue and the younger they are the more they need it.* Under the age of five it is very seldom that tonsils should ever be removed. It is very seldom that by this age

organisms have become domiciled within the tonsil, and if they have it is probable that the healthy lymphoid tissue that remains is of more value to the child than are the organisms harmful to it.

This is, after all, but what we should expect. There has not yet been time for these organisms to gain an entrance and to lodge themselves within these structures. The exact way in which this happens is not known. Probably in the majority of cases it is a gradual process developing slowly over a period of some years, during which a small number of organisms are present in the tonsil without doing any harm. They may, indeed, be doing good by innoculating the child and thus slowly raising the resistance. Certainly the over-protected child or the child brought from the country up to the town may fall a prey to an infection that will barely affect another. It may be at a severe affection such as this or at a severe attack of scarlet fever or measles that the hæmolytic streptococcus becomes embedded within the tonsil, and the state of being a site of sepsis then rises immediately and not as a gradual process.

Small children do not get follicular tonsillitis; if they get tonsillitis at all it is the parenchymatous variety. Now this is no indication for removal of the tonsils; rather is it a local manifestation of the wider inflammation of the whole upper respiratory tract. In small children, indeed, it is often difficult to say how much of the symptoms are due to the inflammation and how much to the attack of acidosis that accompanies it.

When there is any doubt whether tonsils should be removed at this age no harm will come of waiting. Often children pass through one or two winters of such attacks and then entirely grow out of them. In my opinion it is quite wrong to tell a mother that "she is incurring grave risk" by refraining from having removed the tonsils of her son aged 18 months. When the operation is performed in children the tonsils only must be removed, and every other piece of lymphoid tissue carefully conserved. It is particularly harmful to the childhood of the nation that the school of thought in the medical profession which advocates the removal of the tonsils at an early age is also that which advocates the exenteration of the lymphoid tissue of the upper respiratory tract so far as this is anatomically possible.

Above the age of five the same principles apply, and the tonsils still should be left if there be any doubt. I find myself steadily putting up the age which I think can be called the age of selection for this operation; and I know of general practitioners who will not agree to the removal of tonsils in children under their care till ten or eleven if they possibly can help it. It is interesting to note that this is the age at which the lymphoid tissue naturally begins to abort. There is not then the same crying demand to conserve this tissue as there is in the younger child.

The age of selection is the end of the school period and the beginning of adolescence. If in the sheltered life of childhood the tonsils are going to become a source of sepsis they will have become so by this time; the lymphoid tissue in the structures has done its work and can be dispensed with, and if it does harbour a virulent organism it is well that these should be removed before the youth goes out into the world. Not that a careful critical inquiry is no longer necessary. To remove useful lymphoid tissue is still wrong. When the youth has gone out into the world fresh dangers meet his upper respiratory tract, and it is well for him still to have his tonsils with which to oppose them if these are still good functioning structures.

Again it is interesting to note that this is the period of childhood at which the operation upon tonsils and adenoids originally was done. The old clinicians were good observers. Those of us who are old enough can remember the time when this holocaust of lymphoid tissue among the innocents did not exist. The change from taking out the tonsils in a child of 14 to exenterating the lymphoid tissue in an infant of 18 months may have been an advance in operative technique. In clinical medicine it is but a retrogression.

I used to teach that in the adult no consideration need be given to the value of the lymphoid tissue; that it had had its day and done its work, and that if there was any suspicion that the tonsil might be a source of sepsis it could be removed. I now believe that teaching to be wrong, and I recognise two clinical types where it is as important to conserve the lymphoid tissue in the adult as in the young. It must be remembered that by this time the other lymphoid tissue has largely disappeared, leaving the faucial and lingual tonsils as the sole masses that can function if there be need for lymphoid tissue.

The first clinical type is the patient with the body of the adult and the resistance of the child. They occur as persons born and bred in the country who come up to London or other great towns for employment. Such persons will get a series of attacks of inflammation of the throat for the first year or so, and will then grow out of them. These attacks must be expected. They are the natural reaction of the body to the fresh types of organisms to which it is exposed. It is a mistake to remove the tonsils in such patients until it is certain that they have become a focus of sepsis and are no longer a protection. The type is most easily studied among young girls from the

hills of Ireland or of Wales who come up to our hospitals as probationer nurses.

The second clinical type is the enlarged tonsil in the person with the big airway. By anterior rhinoscopy it can be recognised that the nose is roomy. The light reflex can be seen from the posterior pharyngeal wall, the soft palate can with ease be seen rising up as the patient speaks or swallows, and sometimes even the movement of the lateral pharyngeal muscles can be studied. In such a person it is often found that the naso-pharynx and oro-pharynx are unduly large. The distance from the soft palate to the posterior pharyngeal wall is above the average, and by posterior rhinoscopy a cavernous vault is seen. It is remarkable that such persons usually have a very small soft palate; perhaps, indeed, this is the primary variant. The uvula is like a tiny nipple—it falls far short of the tongue and the folds that spread laterally from it appear atrophic, they are so thin. On swallowing, this soft palate may not reach the posterior pharyngeal wall, and the closure of the naso-pharynx is completed by a lateral movement inwards of the palato-pharyngeal muscles which appear hypertrophied for this purpose.

Such persons frequently complain of sore throats and usually have large tonsils. The removal of these tonsils makes their symptoms worse. On inquiry it is found that the "sore throats" are not illnesses associated with malaise and the other general symptoms of an acute infection. They are rather a "condition" which is always present and becomes aggravated to be called pain either at certain times of the day, as on awakening, or in certain states of the weather, or when the patient is tired or slightly out of sorts.

The tonsils are very large, but they show none of the signs of *irregularity* which have been described above. Their contour in silhouette is a part of a perfect circle, as they turn toward you the surface is regular. They may be red, but they are diffusely and regularly so. Their appearance is quite different from that of the very large tonsil that one occasionally sees in the adult which is a source of sepsis, and the removal of which is indicated. The same type of large tonsil occurs in the child, but it is more difficult to recognise the condition when the lymphoid tissue is physiologically plentiful. It is, however, possible to recognise the configuration of the pharynx and soft palate and to remember that, whereas mere size is never a reason for removing a tonsil, in such children the size is a definite indication that they should be retained.

It would seem as though Nature demanded a definite proportion between the cross-section of the upper respiratory tract and the surface of mucous membrane around it, and that when the area of this cross-section exceeds a certain proportion she attempts to compensate by causing to become larger any mass that thereby can increase the surface.

(*To be concluded.*)

Cases from the Wards

(1.)—A CASE OF INTESTINAL OBSTRUCTION

THE patient is a schoolgirl, aged 11½, intelligent and very plucky.

On Friday, May 22nd, she was taken ill suddenly at 4 a.m. with frequent vomiting, generalised abdominal pain, and acute loss of appetite. After two days there was some improvement, so she attempted to get up, but felt so weak and her abdomen so sore, that she asked to go to bed again. During this time her bowels were open regularly, if anything rather loose. There were no urinary symptoms. The next day, that is the third of her illness, she was brought to hospital and admitted to Lydia under Mr. Rowlands.

On admission her temperature was 100° F. and her pulse 98. Her tongue was dry and furred. Abdominal examination showed very definite guarding and tenderness across the lower abdomen, much more marked on the right than the left, with the suspicion of a tumour in the right iliac fossa, but this was difficult to feel on account of the guarding. Examination of the rectum and also the urine showed no abnormality.

A diagnosis of acute appendicitis was made and it was decided to operate at once. A lower right paramedian incision was used, and a small collection of B. coli pus was found retrocæcally, and near this a short perforated and gangrenous appendix was found and removed. Drainage was established by a stab wound in the right flank, and also through the paramedian incision, as some early diffuse peritonitis was present. Anti-gas gangrene serum was given.

For a while the patient did well, but on the eighth day after operation she commenced to have some abdominal pain with vomiting of material, which became rather fæculent in character. By the tenth day there was some improvement, although her temperature was 100° F. and pulse 120, and it was decided not to reopen her; the

interruption in convalescence was ascribed to partial obstruction by newly-forming adhesions and ileus.

From this time onward she improved rapidly, and was discharged on July 7th, and when seen at Out-patients on July 31st was quite well again.

Suddenly, on the morning of Saturday, August 22nd, she was awakened at 4 a.m. by severe colicky abdominal pain, and later, frequent vomiting commenced. At 9 a.m. she was brought to hospital and admitted to Martha under Mr. Turner. There were two very striking things about her then; one, how cold and shocked she was in spite of her fairly good pulse of 88 and clean, moist tongue; the other, that she lay curled up on her side, particularly when the pain was bad. Examination revealed generalised abdominal tenderness, but no rigidity; a suspicion of distension was noticed to the left of the umbilicus. Rectal examination showed fæces in the rectum; her bowels had been open the previous evening and regularly previously. An enema in the ward produced a good result.

A careful watch was kept on her for several hours, during which she vomited, on two occasions, a small amount of clear bile-stained fluid. Her general condition improved and her pulse remained steady at 90. However, at 9 p.m. she vomited again, and her pulse rose by about 10 beats, so it was decided to operate. The abdomen was opened through the old scar, and it was found that she had a knuckle of jejunum, 18 inches from the duodeno-jejunal flexure, kinked over on itself and stuck at its apex by a fleshy adhesion to the side of the mesentery. This was producing complete obstruction. Three other similar loops were found in the next 2 feet of gut and freed; other adhesions present were left untouched. A lateral anastomosis was next performed, short-circuiting the affected piece of gut, and the abdomen closed without drainage. During the operation 1 pint of 5 per cent. saline was given intravenously. No anti-gas gangrene serum was given. Rectal salines were given.

Next day rectal salines containing 7 per cent. sodium chloride and 5 per cent. glucose were given for 24 hours. During this period her condition improved rapidly, and continued to do so until the sixth day after operation, when she did not look so well; her pulse rate rose a little and she vomited three times, but (with the help of an enema) she overcame this partial obstruction in about 18 hours and is now making good progress. This interruption of convalescence was attributed to a partial obstruction, which was circumvented by the lateral anastomosis commencing to work.

There are several points about the case worthy of consideration: firstly, the rarity of such high obstruction, especially following appendicitis, the obstructions after which are more commonly met with in the lower coils of the ileum. Next there were the indications of the obstruction being so high, namely, the profound general upset, the absence of constipation, and the vomit never becoming fæculent. A further indication was afforded by a straight abdominal X-ray taken just before operation, which did not show distended coils of gut.

In association with the great general upset, it is interesting to note that, at the time of operation, the chlorides in both blood and urine were low, while there was considerable ketosis. Further, during the time of her rapid improvement in the first two days, while she was having hypertonic saline and glucose, the chlorides in the urine gradually returned to normal and the ketosis diminished.

I am indebted to both Mr. Rowlands and Mr. Turner for permission to publish this case.

(2.)—A CASE OF ANTHRAX

JOHN G., aged 49 years, admitted to John Ward on April 29th, 1931, under Dr. Marshall.

The patient was a well-built man and had been engaged in a leather factory for the last 11 years, his particular job being to shave the hair from hides destined to become glacé kid.

Three days before admission he had noticed a small painless pimple on his left forearm. This gradually increased in size and he was sent up to this hospital. On admission he had a pustule situated on the extensor aspect of the left forearm about 1 inch distal to the elbow joint. The lesion consisted of a central black eschar about 2 millimetres in diameter and a surrounding zone of inflammatory œdema about 1 inch in diameter. The axillary glands were slightly enlarged, but neither they nor the pustule itself gave rise to any symptoms. He was apyrexial and said he felt perfectly fit. A direct smear was made from the pustule and anthrax bacilli were detected.

It was decided to treat the case with N.A.B. only. Accordingly, soon after admission he was given 0.6 gramme of N.A.B. The same evening a blood culture was made, and this was subsequently reported to be positive. On the following morning a further 0.6 gramme of N.A.B. was given. At this time the patient was still feeling well, but by the evening his temperature rose to 100.4° and he vomited and complained of

headache. He was given 1.3 gramme of N.A.B. combined with 0.3 gramme of Ametox. Thus he had 1.5 grammes of N.A.B. in just over 24 hours. For the next few days he ran a temperature up to 103.2°. The pustule increased in size, and there were signs of vesiculation in the surrounding tissue. The axillary glands were much enlarged and tender. He gradually became apyrexial, and by the seventh day after admission his temperature was normal and he was once more free from symptoms, except for a certain amount of tenderness at the site of the lesion. The pustule quickly healed and the patient was discharged from hospital, having been in for a month.

The interesting feature about this case is that he had no other treatment than the N.A.B. injections mentioned above, and, in spite of a positive blood culture, he made a good recovery.

I am indebted to Dr. Marshall for permission to report this case.

Local Views

CHAPTER I

In which it is shown how the "Local Views" came to be written and how the title came into existence.

MY wife and I "discovered" Sheepfold by accident. We were motoring through Kent and Sussex and had turned down a little lane with high hedges. Without warning we came upon the village lying basking in the June sunshine on the side of a hill on the fringe of Ashdown Forest. Opposite the gray old church was an inn.

"Lunch!" I said.

"Beautiful!" said my wife.

"I don't see how you can say that until we have sampled what they have."

"I wasn't referring to the prospect of having food, stupid," remarked my wife; "I had the beauty of the village in mind. Just look at that old place by the churchyard. It must be the smithy. I can see the glow of the fire, and there's the anvil."

I stepped out of the car and helped my wife to alight. "Bread, cheese and pickles," I said, "and probably beer. Yes, almost certainly beer, drawn straight from the wood into a tankard."

"Wretched man," replied Mary, giving my arm a squeeze. "Do you ever think of anything else but your tummy?"

"I think I shall have a pint to start with," I remarked confidentially, and led her under the cool, honeysuckled porch into the taproom. Behind the little bar stood the shortest and roundest man I have ever seen. His head was round and, except for a little fringe of white hair, was bald and shiny like a burnished saucepan. His face was very red and perfectly circular if you discounted the double chins, three in number, which sat comfortably upon his collar. His little button of a nose shone like a beacon, and the humorous blue eyes above it wore a smile of welcome. His mouth was round and restless, as if its lips were for ever smacking each other over a perpetual half-pint. Behind him stood a row of barrels, and above them were shelves filled with glasses and fine old pewter pots.

"Good morning, Sir! Good morning, Ma'am!" said this personage in a rather high, wheezy voice. For all its high pitch it was a comfortable voice. It made me think of the tinkle of glasses and the giving of toasts. "A nice day, Sir, if I may say so. A grand day as the saying goes. What may I do for you, Sir?"

"Can you let us have some bread, cheese, pickles and beer?" I asked.

"As much as you like, Sir; as much as you can eat and drink, Sir, if I may say so. Would you like to 'ave it in 'ere, Sir, or in the dining-room?"

I glanced at my wife. Then I turned to him. "In here," I said. "The lady will take half a pint of bitter and I should like a pint in one of those pewter pots of yours; perhaps you will have one yourself?"

"That's very kind of you, Sir, very kind indeed, if I may say so." And his lips worked away at each other harder than ever.

With much puffing and wheezing he drew the beer, having to stoop to reach the taps. He then brought the product of his exertions over to the

old pot-marked table in front of the high oak settle at which we proceeded to seat ourselves.

" Your very good 'ealth, Sir, and your's, too, if I may say so, Ma'am ! "

" And a very good health to you, Mr. —er—er."

" Applewell's the name, Sir, Joseph Applewell." And raising the tankard to his lips, he shut his eyes and took a long pull at his beer. He leaned back slightly to do this, and, as far as I could make out, poured the liquor direct into his stomach. We drank, too, and found much pleasure in the drinking, for the beer was good.

" Eh, ah (wheeze) ! That's good ! " said Mr. Applewell, smacking his lips in good earnest, " but I must get your bread and cheese," and he waddled away through a door behind the settle.

Mary gave a little sigh of delight. " Oh, what a delicious place, dear ; just look at those old oak beams in the ceiling. They must have been here for centuries ! " The place was certainly old. There were massive oak beams, black with age, in the ceiling and walls. The fireplace was vast and open ; at the back of it was an old fireback bearing the royal crown of England, a Tudor rose and the date 1547. On the walls were trophies of the hunt and coach. The aged, uneven floor must have resounded to heavy spurred boots, and the walls must have thrown back an echo of strange oaths in quaint English. The atmosphere of the "Rose and Crown" was that of a tranquil old gentleman who, having seen and heard much of this life, was now spending the autumn of his years in quiet repose, his sense of proportion sure and his philosophy calm and unshaken.

Joseph Applewell returned with home-made bread, local butter and some mellow cheese. Some home-pickled onions, too, he brought, and for a while we ate and drank in silence. Suddenly the stream of sunlight which had poured in through the open door disappeared and a gigantic shadow fell across the room. A voice, rolling, deep and rich, was heard outside bidding someone unseen good morning. There was a ring of hobnails on the cobbles, and a man of enormous stature, stooping to save his head from contact with the doorway, strode into the room. His shirt was open at the neck and his huge hairy arms were bare. A leather apron was girt about his middle. The hand which was wiping the sweat from his forehead dropped and I saw a face which carried me back to my early school days. It was the face of a Viking—a study in dark red and gold. The hair, bushy eyebrows and majestic moustache were true gold, and the good-natured massive features were a deep dull red. Steel-blue eyes gazed out steadily from beneath the rugged brows. The whole man was eloquent of generous good nature and solid strength. When he spoke, such names as Vulcan and Thor leapt to one's mind, and the deep rumbling voice made one think of distant thunder in a playful mood.

" 'Morning, Joe Applewell ! "

" 'Morning, Jim Hadlow ! "

" The usual, Joe ! "

" It's in front of you, Jim."

" Oh, ah ! Good health ! "

A pint of " old-and-mild " disappeared in about ten seconds. Some money changed hands and the glass was refilled. Jim Hadlow sat down in a chair and proceeded to fill and light a pipe.

" It's hot in that forge, Joe ! "

" I bet it is, Jim. What job are you on now? "

" Same one. The General's gates ; I'm right tired o' them things. Good health, Joe ! You had better come and lend a hand and get rid of some of that fat of your'n ! " he added, after staring at the little man over the rim of his glass.

"Fat! Darn me! I'm not fat!" And he gazed down with some difficulty at his bulging figure. "At least, not if you consider my age." He spoke as if he were an oak tree which increases its girth with each year of its life.

"'Ave you seen the postcards, Jim?" asked Joe Applewell after a pause.

"No. What are they like?" replied the blacksmith.

"Ah, they're good, they are; 'cept the one what's spoilt by your ugly face. I've come out a treat in the one of the ol' 'Crown'."

"Aye, folks 'll think you're one of your own barrels! Let's have a look at 'em, Joe."

"Here you are," said Mr. Applewell, producing a packet of postcards from under the bar. "I got 'em from Faith Gallon this morning. She got in a stock at the Post Office and I'm going to have a stock, too."

James Hadlow wiped his hands on his trousers and subjected the postcards to a close scrutiny. Suddenly he roared with laughter.

"Old Isaiah Kettlewell's done 'imself proud, 'asn't 'e? I'm busted if he aren't setting outside o' here on this card and outside the 'Fountain' on that 'n!"

That was too much for me. I had been aching to join in the conversation and have a look at the postcards. I left my seat and went over to the bar.

"Another pint of bitter, please," I said.

"Thank 'ee, Sir."

"Good morning!" I remarked to Mr. Hadlow. "Excuse my butting in, but if those are photographs of this village, I should very much like to see them."

"Certainly, Sir. They was only took the other day," replied the blacksmith. "A young feller came over from Tonbridge Wells and done them. Pretty good they are, too. He's got some of us old 'uns in each picture."

He handed me an envelope which bore the title: "Sheepfold. Local Views. Twopence each. The set of eight cards, one shilling and threepence." My wife joined us, gave Jim Hadlow a dazzling smile which made him rise from his chair and touch his forehead with his finger. We looked at the cards in silence. They showed the village and selected pieces of the surrounding country beautifully, but all had the peculiarity that one or more of the little community was shown in each picture. There was Jim Hadlow standing outside his smithy complete in his leather apron and holding one of his hammers in his hand; a horse waiting for some new shoes stood beside him. Outside the "Rose and Crown" was depicted the rotund Joseph Applewell apparently caught in the act of serving an ancient and obviously toothless rustic with beer. The postcard showing the "Fountain Inn," the village pond and the stocks also showed the same ancient rustic seated upon a bench outside the door; he had a stick in one hand and a large tankard in the other. This, they told me, was Isaiah Kettlewell, a keen and active supporter of the brewing industry and deputy oldest inhabitant of Sheepfold. One postcard showed a fine old Elizabethan Manor House; the back view of a bald pate inadequately covered by a panama hat could be seen over the yew hedge. "Who is that?" I inquired.

Joseph Applewell gave vent to a wheezy chuckle. "That 'ere is old Sir Victor Woodhead. A retired general 'e is, and owns most of the land in these parts. A great man is Sir Victor, aren't 'e, Jim?"

"Aye, with the V.C. an' all," replied the blacksmith. There was no mistaking the pride in his deep voice.

After looking at the remaining postcards, we paid our score, took a walk round the village and returned to London.

In the following August we came to live at Sheepfold. From the set of postcards already mentioned May and I slipped into the habit of referring to the inhabitants of Sheepfold as the "Local Views." We know them all now, and many of them are our very dear friends, and if you want to know them, read on. They are living people, hospitable and kind, and you can meet them if you wish in the homely inns of Sussex.

(To be continued)

Post-Graduate Course

IT is proposed to hold an intensive Course of Post-Graduate Demonstrations and Clinics for old Guy's men, during the week in which the Biennial Dinner will be held, *i.e.*, October 12th to 18th. The course will cover a period of two days and will be held if 20 or more indicate their intention to attend.

Old Guy's men who would like to take advantage of such a course are asked to communicate with the Dean as soon as possible, stating the two days which would be most convenient to them, *i.e.*, Thursday and Friday, Friday and Saturday, or Saturday and Sunday. The course will be given on the two days which are convenient to the largest number of applicants. No fee will be charged. (N.B.—The Biennial Dinner will be held on Friday, October 16th.)

Odd's Tonsils

HAVE you ever drunk a bottle of whisky, neat, stat? No? Well, don't. There's no need to. The desired effect may be produced by having an injection of omnopon and scopolamine, administered via a blunt hypodermic needle which enters the most sensitive part of the arm after approximately the fifth jab; then all you have to do is to wait.

Que me, Bacche, rapis, tui plenum?

What rapture! Floating on this feather bed, the familiar symptoms spreading, gently caressing the finger-tips with their soothing, tingling numbness, while a Scotch mist creeps up over the surrounding screens.

Personally, I was disappointed not to see any serpents, or the familiar troupe of red rats, with aluminium whiskers, cycling up and down the walls—an entertainment commonly witnessed at one of the local hostelries. But now the screens have gone, and I am wafted in a state of ecstasy on to a luxurious trolley by a covey of angelic nurses, equipped with harps, wings and strings. And thence to the Lethean lift.

Of course, all this wasn't buckshee, and for this half-hour's superb intoxication I forfeited several ounces of tonsil, the sudden disappearance of which wasn't nearly so funny as I'd expected.

Nor was the awakening very amusing, and before long I had shattered all vomiting records for the Southern Counties, and coined several new words to describe my absent lymphoid tissue, which, as far as I could feel, had undoubtedly been removed with an egg-whisk.

"Where are my —— (censored) tonsils?" I asked nurse, now stripped of harp and wings, and she handed me a Petri dish containing an angry mass, such as is frequently seen in the C——e Dining Room. There was only one tonsil there. Its mate apparently had been lost in transit; or perhaps it had escaped in theatres, leaping from its fossa to the floor, biting sister on the ankle and scuttling under the door—a sure sign of a ripe and rancourous tonsil.

The days which followed were days of recrudescent penance, living chiefly on bread and butter and bed-pans, and having my sloughs syringed by one who evidently had an intimate knowledge of hosing cars.

But if I had my time again I would have my tonsils removed one at a time—it'd be worth it if my anæsthetist again "treated" me so generously.

I must send him a bottle for Christmas.

Regulations for Procedure in Cases of Onychogryphosis

1. The following apparatus shall at all times be kept sterile and ready for use in the theatres, and shall not be used for any other purpose than the treatment of angina pectoris, blood transfusion, hernia, gastrojejunostomy, onychogryphosis, and the failure of the electric light:—

a. Complete set of instruments for Oppenheim's operation.
b. A gross of "fish-hook" arterial needles threaded with catgut and kept sterile in absolute alcohol.
c. A siphon of soda water.

As soon as notification has been received that a case is being sent to the theatre, the following shall also be got ready:—

d. Apparatus for intra-tracheal anæsthesia.
e. Adrenalin 1/1000, enema syringe and soap.
f. Martel's saw.
g. Means for keeping the patient red-hot.
h. Another siphon of soda water.

2. All Registrars shall perfect themselves in the technique of Oppenheim's operation by practice on the cadaver; they should acquire the theatre set of instruments for this purpose. Should they care to return the set, it is well to sterilise it before use on a patient.

3. As soon as the House Officer makes the diagnosis of onychogryphosis he shall notify:—

a. Any Surgeon who may be in the hospital.
b. The Registrar on duty.
c. The Theatre Sister.

He shall call in addition:—

d. The Surgeon in charge of the case, together with the Assistant Surgeon, the Dresser and Ward Clerk.
e. Any Physician he may observe in the hospital or its vicinity, and, failing him, the Minister of Health.
f. Gibb.

4. As soon as possible, if not sooner, the patient shall be conveyed to the nearest theatre and the skin prepared for operation. The patient should be given an ice pack to keep him occupied, and the dresser should be prepared to administer intravenous saline, nutrient enemata, caffeine, antitenac serum and artificial respiration. In a word,

everybody should be prepared to operate instantly should this become inevitable.

5. No operation shall be undertaken until the arrival of the Surgeon and the other persons notified by the House Officer, unless the heart stops beating, when Mr. Gibb should immediately take charge.

6. As soon as the diagnosis of onychogryphosis is made, the friends, relatives, dependents and heirs of the patient shall be summoned to the hospital, where they shall receive, *gratis*, a clinical lecture on the patient's condition and permission (by ballot) sought for the operation to commence. Such permission should be obtained in writing and witnessed by a Justice of the Peace, a Banker or a Clergyman. Should the patient in the meantime have given a flat refusal to play any more or expressed a desire to go out and have a drink, the Governors of the hospital shall be called upon to decide on the proper procedure; they should bear in mind that any reasonable request on the part of the patient should meet with approval, as a refusal may seriously damage his chances of recovery.

Correspondence

The Squash Court

To the Editor of the GAZETTE

SIR,—In a past issue of the *Gazette* I complained of the imposition of a charge of one shilling for light on those using the squash court. My complaint, however, having met with no success, I have since become resigned to the position, and now willingly contribute towards the expense of the lighting.

It seems only natural, however, that we should expect full, or at least reasonable, value for our money. At the time of writing, two of the lights are not functioning. Moreover, the shades of some of the others are so positioned as to cut off the light from parts of the court most needing it. Also the walls are so dirty that what light there is has but little effect.

Squash, played in a properly illuminated and clean court, is a most enjoyable game; but when played in an atmosphere of semi-darkness it is not only impossible to enjoy, but also extremely exasperating. Most players will agree that, of all ball games, squash especially requires good light.

Surely the amount of money subscribed towards the cost of the lighting must more than cover that expense. Could not some of it be used to repair the lights and perhaps also towards the provision of soap, water and scrubbing-brushes for cleaning the walls?

Yours, etc.,

"STUDENT."

The College,
Guy's Hospital, S.E.1.

Reviews

Groundwork of Biophysics. By G. M. WISHART, B.Sc., M.D. Published by Messrs. G. Bell & Sons, Ltd. *Price* 12*s.* 6*d. net.*

THERE are many sections of modern physiological teaching which require for their understanding a good general, though not necessarily a very advanced, knowledge of physics and physical-chemistry. The above book is an attempt to provide a short account of such portions of these subjects as the author has found most commonly to require revision by the time the student comes to apply his knowledge of them, gleaned in the earlier stages of his professional training, to the study of physiology.

The plan adopted has been to present in the earlier chapters a rapid survey of some of the more important aspects of physical chemistry, passing on gradually in the course of the book to those physiological functions which particularly involve such considerations. Thus the earlier chapters include discussions of "The Structure of Matter," "Energy," "Osmotic Pressure," "Colloids," etc., the later chapters of the cell and cell-membranes, of excitability and energy exchanges in glands, muscles and nerves, and of the physico-chemical changes which occur in blood in relation to its function as a carrier of the respiratory gases and a stabiliser of tissue acidity. Finally, chapters are included on optics and sound as applied to the mechanisms of the eye and ear.

It is obvious that the range covered is wide, and this, together with the fact that each section seems very adequately treated in a book of only moderate length (340 pages), implies that words are not wasted, and careful reading is therefore necessary. None the less, the book is easily readable, and the different chapters well balanced, and it can be confidently recommended to the second-year student for use in parallel with his standard text-books of physiology.

Sport

Rugby

THE prospects for next season are decidedly promising, as the majority of last year's team are available, in addition to many of the "A" fifteen who have had experience with the premier side.

Windsor H. Lewis and J. S. Batchelor have been re-elected Captain and Vice-Captain respectively. I. G. Robin is the Hon. Secretary and A. R. Clarke continues as Match Secretary.

Unfortunately, the Hospital will not have the assistance of Walter Lewis, the full-back, and their late Secretary, G. F. Lashmore. The former has not recovered from injuries he received towards the end of last season, and the latter has not been able to shake off the effects of a long illness. In addition, we have to say farewell to L. H. B. Hilton, a hard-working forward, who has now qualified and left the Hospital, and both T. Fichardt and J. Kunovsky find it impossible to turn out next season.

It is rather early to say what freshmen will be available, as the term does not commence until after the Rugby season opens, but the back division will be strengthened by the arrival of P. C. Alexander, the Oxford Blue.

An attractive list of fixtures has been arranged and is printed below. It is good to see that the Hospital has been able to renew home and away fixtures with our old friends Plymouth Albion and Cardiff. It is many years since Cardiff were entertained at Honor Oak Park, and they will undoubtedly receive a hearty welcome.

Fixture lists are always difficult to arrange, especially nowadays when so many clubs are anxious for first-class fixtures, and it is a pity that it was not possible to arrange matches with the Old Blues, Old Alleynians and the London Scottish. However, the Secretary has the list in hand for 1932-3, and we hope to see them included next year.

There should be keen competition for places, and the trial matches which are to take place on Saturday, September 12th, and Wednesday, September 16th, should be worth seeing.

During the early part of this year the Clubs' Union Council consulted various experts for improving the ground and, acting upon their advice, a large portion of the ground has been re-turfed and an entirely new drainage system has been installed, which it is anticipated will prevent the ground from churning up as it has in the past.

FIXTURES, 1931-32

1931	*Opponents*	*Ground*
Sept. 12	Trial	Home
„ 16	Trial	Home
„ 19	Catford Bridge	Home
„ 26	Plymouth Albion	Home
Oct. 3	Portsmouth Services	Away
„ 10	Cheltenham	Away
„ 17	U.C.S. Old Boys	Home
„ 24	Harlequins	Away
„ 28	Cambridge University ..	Away
„ 31	Coventry	Away
Nov. 7	Northampton	Home
„ 14	Coventry	Home
„ 18	Portsmouth Services	Home
„ 21	Birkenhead Park	Home
„ 28	Bristol	Away
Dec. 5	Richmond	Away
„ 12	Aberavon	Away
„ 19	Cardiff..	Away
1932		
Jan. 2	O.M.T.'s	Home
„ 9	Cardiff..	Home
„ 16	Birkenhead Park	Away
„ 23	Gloucester	Away
„ 30	Northampton	Away
Feb. 3	Cambridge University ..	Home
„ 6	Rosslyn Park	Home
„ 9	St. Bart.'s Hospital (*1st Round, Inter-Hospital Cup*) ..	
„ 13	Aberavon	Home
„ 20	Old Milhillians	Away
„ 25	*2nd Round, Inter-Hospital Cup*	
„ 27	Plymouth Albion	Away
Mar. 5	Old Leysians	Away
„ 12	London Irish	Away
„ 16	*Final, Inter-Hospital Cup* ..	
„ 19	International Scotland ..	Home

Swimming

WITHOUT going into detail, the Swimming Club has been unfortunate this season. Many of the matches were scratched, and rarely were we able to turn out a full team. Added to which, most of the senior representatives are no longer available, and we have had to start from scratch. However, we were inundated with new talent, which shows excellent promise for next season. Of the newcomers, Styer and Walker have not failed to give excellent performances at polo, and Walker again and McKay at swimming.

Though lacking in quantity, the fixtures have been of good quality, so far as the Hospital was concerned. Out of 19 matches arranged, only nine were played, resulting in 5 wins and 4 losses. The Midsummer exams., coming at a time when fixtures were thickest, accounted for this result.

On May 15 we were beaten by the Grafton, 1—5—to harp on an old theme, the score provides an inadequate idea of the equality of the game. Four days later we defeated the Otter V. We next were given a walk-over by the Barry S.C. On May 27th we visited our old friends the R.M.A., and beat them at swimming and polo. On May 29th we played Hounslow at Pitfield Street and were again fortunate, each team playing a man short, which resulted in an enjoyably strenuous game. Our next two fixtures, against the Old Paulines and Lewisham, were disastrous, but we followed this up by beating Harrow School in a swimming match. We were again defeated, on June 16th, by Lewisham.

In the second round of the Inter-Hospitals' water polo we were defeated by Bart.'s in a somewhat one-sided game; Sutton harassed us considerably, and scored several remarkable goals. The account of the Bath Club gala appeared in a previous issue of the *Gazette*.

Throughout the season individual play was good, but we suffered from lack of co-ordination. Once or twice Styer, Lewis and Walker got together in some good passing, but, on the whole, the ball did not move as freely as required. A little lunch-hour practice should remedy this and enable us to feel our way about better. We still have several galas to attend towards the end of September, when we shall be free from the examination bugbear. Our prospects for next season promise to be extremely bright.

Lawn Tennis

ALTHOUGH handicapped by the bad weather this summer, the Club has had quite a successful season in the matches which have been played.

Of the 22 matches arranged, only 13 were played owing to rain—of these, 7 were won, 1 drawn and the remaining 5 lost.

For the second year in succession the Hospital won both the Senior and Junior Hospital Cups, and the best matches of the season were seen in this competition.

Against St. Thomas's Hospital in the Semi-Final Guy's won by 8 events to 7 in both 1st and 2nd VI matches, both results depending on singles which were won by Giesen and Hollis respectively.

In the Final against St. Bartholomew's the 1st VI won by 8 matches to 5, although without a full side, and the 2nd VI had an easy victory, the opposing side only winning 2 matches.

The Hospital is lucky in having two first-class players in H. G. N. Cooper and J. E. Giesen. In the Cup matches neither of these players lost a single, and in the doubles they remained unbeaten, thus leaving the remainder of the side only three matches to win to make sure of the match.

One new fixture against the West Hants L.T.C. was played, which provided perhaps the most enjoyable match of the season, but which the Hospital unfortunately lost by 5 matches to 3 after a close fight on perfect courts.

The tournament with the Nurses unfortunately had to be postponed owing to the weather, but it is hoped that it will be played later.

Hospital Information, etc.

Pass List

UNIVERSITY OF CAMBRIDGE.

Diploma in Medical Radiology and Electrology.

M. Mitman

CONJOINT BOARD.

July, 1931.

PRE-MEDICAL EXAMINATION.

PART I.

Chemistry and Physics.

A. B. Baxter
P. Griffin
J. E. C. Peacock
*W. R. C. Brown
D. G. Price
R. N. Sachdev
G. R. Down
J. L. MacDougall
J. Patterson
*D. E. Ashdown
*F. H. W. Peatfield
*T. A. Hale Monro
*E. Gill Carey

* Physics only.

PART II.

Elementary Biology.

A. B. Baxter
F. H. W. Peatfield
A. G. Richmond
E. Kaplan
A. S. Woolstone
J. J. Gaterell
K. A. Keith
E. B. Briault
O. B. Brears
A. G. T. Brown
G. A. Burrows
E. Dunstan
W. S. Jackson
H. P. L. Rhodes

FIRST EXAMINATION.

PART I.

Anatomy and Physiology.

W. M. Graves Morris	*A. L. Peers
J. T. Waldie	*T. Weiner
*R. H. Blazeby	*R. G. Chapman
C. W. Williams	*L. G. Lyle
†M. Tin	F. A. Nicolai
*C. L. Stevens	*C. C. White

* Physiology only. † Anatomy only.

PART II.

Pharmacology and Materia Medica.

G. L. B. Thurston	T. E. Mitchell
E. J. Stubbs	A. G. Donald
H. P. Russell	J. P. O'Shea
E. J. Littledale	M. L. Walt
S. C. Shore	R. G. Knight

FINAL EXAMINATION.

SECTION I.

Pathology.

V. T. Powell	R. A. P. Hogbin
V. Constad	W. S. Pitt Payne
W. T. North	C. B. R. Pollock
S. Paul	T. A. Gavin
W. W. Jones	J. A. W. Miller
I. Levy	R. G. Reid
G. C. Sawyer	L. O. Knox
K. J. Gilchrist	D. H. Irish
S. W. Wright	G. B. Palmer
J. C. Read	

SECTION II.

i. *Medicine.*

J. W. V. Sheldon	*J. S. Lane
J. Rosenberg	D. Stone
R. A. S. Hammond	*E. W. M. Williams
*C. H. Rogerson	*N. L. Lamb
M. T. Maung	*A. M. Cantor
*N. A. Constable	*W. H. Bradbeer
*W. H. Greany	*I. Moshinsky

ii. *Surgery.*

E. A. R. Berkley	R. A. S. Hammond
*E. W. M. Williams	G. R. C. Rayner
H. A. T. Wells	W. H. Owles
*M. J. Garber	C. E. R. Wood
*E. Sharp	*M. Kosloff
J. Howell	*J. M. L. Burtenshaw:
*H. C. Muirhead	

iii. *Midwifery.*

V. T. Powell	W. P. Stamm
F. N. Corfe	I. A. MacDougall
W. H. Lewis	G. H. Taylor
F. H. E. Beckett	*H. N Garrus
J. R. S. Sharp	W. L. James
*B. H. Gool	

* Now holds Diploma.

SOCIETY OF APOTHECARIES OF LONDON.

FINAL EXAMINATION.

August, 1931.

Surgery.

J. W. V. Sheldon

Medicine.

*E. S. St. John	J. W. V. Sheldon

Forensic Medicine.

J. M Durr	J. W. V. Sheldon

Midwifery.

J. M. Durr

* Now holds Diploma.

Papers by Guy's Men

G. F. Gibberd. Breech presentation; fœtal mortality and injuries. *B.M.J.*, 1931, ii, 369.

N. Burgess. Bilateral herpes zoster. *B.M.J.*, 1931, ii, 384.

A. H. G. Burton and A. R. Balmain. Recovery from streptococcal septicæmia. *Lancet*, 1931, ii, 72.

C. Worster-Drought. Pubertas præcox. *Proc. R.S.M.*, 1931, xxiv, 1338.

H. W. Barber. (1.) Lichen planus atrophicus; (2.) Sycosis treated by intradermal injections of staphylococcal vaccine; Eruptions involving the external auditory meatus. *Proc. R.S.M.*, 1931, xxiv, 1356, 1393.

L. Forman. Treatment of sycosis by intradermal injections of staphylococcal vaccines. *Proc. R.S.M.*, 1931, xxiv, 1358.

E. G. Little. (1.) Urticaria pigmentosa; (2.) ?Lichen planus atrophicus. *Proc. R.S.M.*, 1931, xxiv, 1365.

J. A. Ryle. On examining rectum. *Clin. J.*, 1931, lx, 373.

W. H. Ogilvie. Ulnar palsy occurring 35 years after fracture of external condyle of humerus. *Proc. R.S.M.*, 1931, xxiv, 1377.

R. P. Rowlands. Surgical treatment of cholecystitis. *Clin. J.*, 1931, lx, 397.

A. H. Todd. Post fixed brachial plexus. *Proc. R.S.M.*, 1931, xxiv, 1375.

Change of Address

Dr. R. W. Stephenson, 68, Crystal Palace Park Road, Sydenham, London, S.E.26.

Appointment

N. Burgess, M.D., M.R.C.P., Research Scholar of the British Medical Association for 1931-32.

Notice

GUY'S HOSPITAL MEDICAL SCHOOL

Applications are invited for the appointment of Demonstrator of Prosthetic Dentistry to commence duties on October 1st.

Applications should be forwarded not later than 12 noon, on September 16th, to THE DEAN, Medical School, Guy's Hospital, S.E.1, from whom further particulars can be obtained.

T. B. JOHNSTON, *Dean.*

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

Volume XLV — *19th September 1931* — *Number 1126*

PASSIM

DURING the past few seasons the Rugby pitch at Honor Oak Park has gained the unenviable reputation of being the heaviest ground in London. Indeed, such a morass has it been in anything but the fairest weather conditions that in recent years many matches have been either scratched or played elsewhere. This, of course, has resulted in a considerable loss of revenue to the Clubs' Union, for, even excluding matches not played, the gate receipts have often been small, because a game played in a sea of mud is, to the average spectator, a poor spectacle.

The Clubs' Union Council, realising that any expense entailed in improving this state of affairs would be amply repaid, has made every effort to ensure that in future years the condition of the ground will be more than satisfactory. During the summer the Rugger pitch has been almost completely re-turfed, and the drainage system renewed. This has entailed an expense of over £1,000, but we are assured that we will now have a ground which will compare favourably with the best in London; so we may look forward to bright, fast and open games, with, we hope, a corresponding increase in gate receipts.

For some time the Junior Rugby XV's and the Hockey Club have been inadequately catered for in the matter of grounds, and to remedy this the Council has rented a Rugby and a Hockey pitch at the old London Irish ground at Motspur Park. This may be only a temporary measure, for perhaps in the future it will be possible for the Clubs' Union to acquire the area of land adjacent to Honor Oak Park, commonly known as Noakes' Field. In this way the activities of all the clubs belonging to the Clubs' Union would be centralised. This, of course, would make further changing room and pavilion accommodation necessary. Indeed, the present pavilion is totally inadequate, and plans have already been drawn up for its enlargement, with special attention to the groundsman's quarters. But matters of finance have, as yet, prevented these plans being put into action.

The first match of the season is to be played against Catford Bridge on Saturday 19th, at Honor Oak Park, and we would like to take this opportunity of wishing Windsor Lewis and the 1st XV every success during the season. Whilst in the past few years we have usually been able to put a strong back line on the field, we have, nevertheless, always been rather short forward. And this is, at the time of going to press, particularly noticeable again this year; for whilst we have lost several of our best forwards through injury and other reasons, there has as yet been no sign of any new talent. Maybe this remains latent and will yet show itself. However, the reputation that has been built up for us in past years must be maintained, and it is hoped that all available players, especially forwards, will do their best to help the Hospital in this respect.

▭

WHEN a medical man undertakes the care of any particular patient he is faced with two duties: firstly, to diagnose the condition of the sufferer, and, secondly, to apply the appropriate treatment. For the former, we feel that a man who has received his medical education at Guy's is well equipped. There is undoubtedly no teaching hospital which gives to its students a wider scope for the first-hand study of the clinical aspect of medicine; and throughout the whole course of his training each is carefully schooled in the differential diagnosis of the cases he meets in the various departments. From time to time, however, there has been a feeling amongst senior

students and recently-qualified men that a disproportionately small amount of time is given to instruction in the treatment of the conditions seen in the wards and at Out-patients. Perhaps the examinations are in part responsible for this, in that comparatively few questions are asked on treatment, the majority demanding a description of the symptoms, signs and course of a disease.

The great majority of men on leaving the Hospital, sooner or later find themselves in general practice. In this branch of the profession the value of a sound knowledge of the therapeutic side of medicine cannot be over-estimated. We would, therefore, venture to suggest that, should it be possible of arrangement, an annual course of lectures devoted solely to the treatment of the more common medical conditions would prove a very popular measure. More especially would it be welcome to those who, immediately on qualification, sally forth into general practice, or, as is more often the case, to take "locums" therein without having gained any previous therapeutic experience.

THE College is shortly to be deprived of one of its most familiar figures. Mrs. Sturgess, who has served in the capacity of College cleaner for the last 12 years, is to enjoy the remainder, and we hope many years, of her life in a well-earned retirement. It is felt that many past and present inhabitants of the College would like to contribute towards a testimonial with which to mark their appreciation of her services in the past and to tender their wishes for her future happiness. Will all those so inclined kindly send their contributions to the *Gazette* office?

WE should like to take this opportunity to congratulate Mr. C. K. Simpson on his appointment as Senior Demonstrator in the Pathology Department.

WE regret that, owing to an oversight, we omitted to state that it was Mr. H. O. Lyne who kindly reported the "Case of Intestinal Obstruction" published in our last issue.

Infantile Paralysis

An Abstract of Demonstration of Cases by W. H. Ogilvie, Esq., M.Ch.

GENTLEMEN,—Infantile paralysis, or, to give it its proper name, acute anterior poliomyelitis, is a disease caused by a filtrable virus, which is pathogenic to man and monkeys. It occurs with the greatest frequency in temperate climates, and during the months of July, August and September, but sporadic cases appear all over the world and at all seasons. There are certain areas, such as Sunderland, in which it is more or less endemic, and small epidemics tend to occur from time to time. There was one in New York in 1907 in which 1,000 cases were observed, another in the Lake District in 1911, one in New Zealand in 1920, a fairly serious one in 1926 among a group of private boarding schools in Kent, and at the present moment the worst outbreak so far recorded is causing considerable anxiety in New York. The port of entry is the naso-pharynx, and transmission is almost certainly by "droplet infection"; from the naso-pharynx the virus reaches the sub-arachnoid space by the perineural lymphatic spaces accompanying the branches of the olfactory nerve. Poliomyelitis is essentially a disease of childhood, hence the name "infantile paralysis." Cases occur in adult life, but about 90 per cent. of these cases occur between the first and fifth year with a maximum incidence in the second. One attack usually protects against any further infection. It is customary to divide the course of the disease into three stages, the acute stage, the stage of recovery, and the stage of residual crippling.

The acute stage is very apt to escape diagnosis, except in the presence of a major epidemic. The symptoms are very similar to those of influenza. There is temperature, a sore throat, pain in the back and limbs, and tenderness of the limbs, especially the limbs which are later paralysed. In some cases gastro-intestinal symptoms predominate, and in others they are mainly respiratory. The picture is that of a generalised infection, which it is. The presence of a flaccid paralysis is the one distinguishing feature. But the paralysis is not present at the onset, only appearing after two or three days. By that time it may escape observation, being masked by the general toxæmia. For poliomyelitis in the acute stage is a very grave disease, and has a death rate varying from 10 to 40 per cent. in different epidemics. To add to the difficulty in diagnosis, we find that in epidemics there occur many cases, almost certainly of the same infection, in which paralysis never occurs. Of those in which there are paralytic symptoms, 25 per cent. recover completely. Rare cases have signs of involvement of

the upper motor neurones as well as the lower, a polio-encephalo-myelitis, and in the third stage of the disease these present a puzzling combination of spastic and flaccid paralyses.

The pathological changes found in the first stage are those of an acute infection, and involve most structures in the body, notably the lymphoid tissues. It is in the cord and meninges, however, that the characteristic appearances are found. They are those of acute inflammation, and involve the cord, brain and meninges in a scattered manner, but especially the anterior and posterior horns of the grey matter in the cervical and lumbar enlargements.

The treatment of the acute stage is partly in the domain of public health, and involves the notification and isolation of all cases, and the isolation of suspects. The naso-pharynx of children who have been exposed to infection should be sprayed with a solution of potassium permanganate or hydrogen peroxide. The serum of convalescent patients, where such can be obtained, is administered to patients showing the prodromal symptoms of the disease; unfortunately, the supply of such serum is limited, and it appears to be of no value once paralysis has set in. The local treatment of the diseased tissues, the grey matter of the cord, can be attained in two ways. We assist the local reaction to infection by keeping the trunk warm, and by lumber puncture, which relieves the pressure of the exudate, and we rest the diseased tissues. Mechanical rest of the cord is obtained by immobilisation of the whole trunk, functional rest of the horn cells, by restraining all movements of the muscles, and by eliminating all reflexes which may call up a motor response. The simplest way of obtaining these desiderata is by making a plaster shell lined with cotton wool to fit the posterior half of the patient, and keeping them thus till the acute stage is over.

The first stage usually lasts from four to six weeks, and can be considered as terminated when tenderness has disappeared. Tenderness is an indication of the inflammatory changes round the posterior horn cells.

The second stage is that of recovery. During this stage there is a gradual absorption of the products of inflammation in the cord. Those areas which are completely destroyed are replaced by an ingrowth of neuroglia. Cells which have been pressed upon by exudate, but not destroyed, recover their function; others, more severely damaged, may be able to send down fresh axons into the nerve sheaths. New connections are established between the brain and the remaining motor cells. The posterior horns always recover completely; the complete absence of any sensory loss is one of the most characteristic features of poliomyelitis. The paralysis also recovers to a very remarkable extent, and even after a few weeks involves only a small proportion of the muscles at first affected. It is difficult to say for certain how long this process of recovery in the cord takes, but it probably varies from six months in mild cases to two years in severe ones. The recovery in the paralysed muscles does not necessarily proceed at the same rate, for it is to a great extent dependent on the soundness of the treatment which is adopted.

When a voluntary muscle has been deprived of its nerve supply, its ultimate recovery depends chiefly on whether fresh axons come down to establish connection with the motor end plates on its constituent fibres. But when healthy axons grow down, recovery will only take place if the nutrition of the muscle is unimpaired, and if the muscle has been kept relaxed. A muscle whose blood supply is interfered with rapidly degenerates into fibrous tissue, and permanently loses its contractile power. A muscle which is allowed to stretch while it is paralysed will show no recovery even though its innervation has returned. The principles of treatment in this second stage are, therefore, warmth and relaxation. Paralysed limbs are continually kept warm in order to keep their circulation intact. The normal call for blood supply, that of action, is absent, and we must make the most of the circulation through these immobile muscles by keeping the whole limb warm. The effect of warmth on recovery is most striking in poliomyelitis. A muscle will give that first flicker of response which gladdens the heart of the attendant on a warm day. In summer the poliomyelitis cases in a ward improve; in winter they are apt to remain stationary or even to lose some power which had returned. Relaxation of the paralysed muscles is obtained by splinting. Where all the muscles of a limb are paralysed, the limb is splinted in a position which will avoid deformity, and which favours the most essential muscles. Thus a completely paralysed lower limb is fixed with the ankle at right angles, the knee fully extended, and the hip slightly abducted in the coronal plane. In locomotion the abductors of the hip are more important than the adductors; the quadriceps than the knee flexors, and we therefore favour these "key" muscles in the position we select for splinting. If single muscle groups only are paralysed the position is varied accordingly. Thus paralysis of the extensor group at the ankle demands a position of dorsi-flexion of the foot during the second stage. I cannot emphasise too strongly the need for relaxation of paralysed muscles during the stage of recovery. There is a

tendency among neurologists to belittle the importance of relaxation, and even to suggest that it may lead to stiffness in joints and loss of power in unaffected muscles; this teaching has been responsible for much avoidable crippling. Sound muscles and joints in childhood recover their full power and movement even after years of complete immobilisation. Two things are forbidden during this stage, electrical stimulation of paralysed muscles—for this is only stretching in another form—and any massage other than light skin rubbing designed to increase the circulation.

The permanent stage is reached when all the muscles which can recover have done so. In a case which has been properly treated from the start, this should be in two years from the onset. This stage is always complicated by trophic changes and by retrogression of power, and its treatment demands infinite patience and continual supervision. We must bear in mind that these changes in the cord are of a very scattered nature, and that not only are certain muscles in a limb picked out by paralysis, but certain fibres in each muscle. The muscles which recover usually do so in a proportion of their fibres only, and these fibres are called on to do the work of the whole muscle. Retrogression in power is sometimes due to cold, sometimes to injudicious overwork. The shortening of the skeleton which always accompanies, but is by no means always proportioned to, the paralysis, is another disturbing factor in recovery. For instance, the extensors of a paralysed ankle may regain so much power as to hold out a prospect of being able to support the foot without any assistance. As the patient gets older the growth of the paralysed limb lags behind, and increasing shortening demands a higher, and therefore a heavier, boot. The extensors which at first promised well are no longer able to cope with the weight of the boot.

Very few cases belong to the first category when first seen, however long an interval may have elapsed since the onset. They require correction of deformities due to contracture of the less paralysed group. Until this has been done, and the limb rested in the relaxed position for a further two years, no estimate can be formed of the possible recovery of muscles, or of the steps that may be required for further treatment. This correcting of deformity is hardly ever operative. Shortened muscles and contracted ligaments will nearly always yield, either to manual stretching under an anæsthetic or, better still, can be gradually elongated by a series of plasters applied at intervals of a month. Tenotomy is almost extinct in the treatment of infantile paralysis. A muscle which is strong enough to produce a contracture is too good to waste, and if we divide its tendon we allow the belly to shorten and lose its power. The amount of muscle power in a limb represents its potential power of function. If this power is ill-balanced, our aim should be to redistribute its action, and not to diminish any part of it.

The treatment of the third stage, the stage of permanent crippling, resolves itself into determining how we can best make use of the available power in a limb so as to convert it into the most useful piece of mechanism which is possible with the material at our disposal. This involves the employment of one or all of the following expedients: the fixation of joints, the redistribution of muscle groups, and the use of permanent apparatus.

To discuss the treatment of the third stage in any detail would be to cover nearly half of orthopædics. I will therefore confine myself to a few illustrative examples.

We only fix joints when by so doing we attain our object of restoring function in a more satisfactory manner than by the use of apparatus. We rarely arthrodese the knee. If the quadriceps is very weak, there is nearly always a degree of paralysis in the foot which will demand the use of permanent apparatus, even though the knee be ankylosed by operation. It is therefore better to continue this apparatus upwards in the form of a calliper, and use it to control both the knee and the foot. A hinge can then be provided if the patient wishes it, which allows the knee to be flexed when he is sitting down, so that it does not get in the way of other passengers in a bus or train. A fixed knee is very often in the way, and it has another disadvantage. The bones of a paralytic limb also show marked rarefaction; the compact bone is a thin shell, the trabeculæ of the cancellous tissue weak and scattered. Such bone is easily broken, and arthrodesis of the knee converts the tibia and femur into a single fragile bone nearly 30 inches long, which may be fractured by slight violence. Moreover, excision of this joint, owing to the poor condition of the bones, often results in a fibrous ankylosis, which provides no real stability.

We always fix the shoulder where the deltoid is paralysed, provided that the movements in the hand are good enough to make the limb a useful one, and provided the muscles acting on the scapula are strong enough to abduct the arm after arthrodesis. In this case we obtain the essential movement of abduction much better by arthrodesis than by the use of any apparatus.

It is in the foot, however, that operations for the fixation of joints have their greatest scope. The movements that take place in the many

joints of the foot are very complex, but for practical purposes we can divide these movements into three groups. At the ankle joint there is a hinge movement between the astragalus and the tibio-fibular mortice around a transverse axis. At the astragalo-calcanean, or sub-astragaloid, joints, antero-posterior gliding movements, and movements of inversion and aversion can occur. The astragalo-scaphoid, calcaneo-cuboid, and the joint between the scaphoid, cuboid and cuneiforms can be considered as one joint, the medio-tarsal joint. At this joint there occur up and down movements, increasing or diminishing the curve of the longitudinal arch, movements of abduction or adduction of the fore part of the foot, and rotatory movements of pronation or supination. The combinations of all these movements make the normal foot a wonderfully supple piece of mechanism. They are checked by ligaments, but controlled by muscles, and it is on the integrity of muscles that the shape of the normal foot depends. Where the muscles are weak or paralysed, the ligaments yield to strain, and deformity results. If all the muscles are paralysed, the foot is deformed by the effects of gravity, the usual result being an abduction of the fore part of the foot, and valgus at the sub-astragaloid joint. If certain groups only are paralysed, the resulting deformity is much more marked, for the foot is pulled out of shape by the unopposed action of the remaining muscles. It may be taken as a fairly good rule in infantile paralysis affecting the lower limb that the greater the degree of the deformity in the untreated foot, the greater is the prospect of obtaining a useful result by treatment. For marked deformity means that some powerful muscles are present to cause that deformity, and those muscles can be turned to good account.

When the foot is completely paralysed, our aim is to produce a simplified foot, which will allow the movements necessary in walking, but which will not undergo deformity under the action of gravity. Such a foot has been evolved by the makers of artificial limbs. The artificial foot has two joints only, an ankle joint of steel and a joint corresponding to the metatarso-phalangeal joints made of leather. The movements of both these joints are checked by rubber buffers let into sockets in the wood. Compared with the normal foot, the ankle joint is further forward towards the centre of gravity, so that the foot is more nearly balanced on the leg. We imitate this artificial foot as nearly as possible by an operation known as Dunn's operation. Through a single external incision, the calcaneo-cuboid joint and sub-astragaloid joints are excised, the whole scaphoid removed, and the cartilage shaved off the head of the astragalus and the proximal surface of the three cuneiforms. The astragalus is then pushed forwards so that its head lies in contact with the cuneiforms. The result when bony union has occurred is a shorter and simpler foot, whose ankle joint and tarso-metatarsal joints remain, but which carries the ankle joint nearly in the centre of a solid block of bone representing the whole of the body of the foot. This is a very fair and serviceable replica of the artificial foot, but it costs nothing in repairs.

When certain muscles remain we, nevertheless, do the same operation, for by it we reduce the foot to a mechanism with movements in one plane only, and we are free to use the whole of the motor power to produce these movements. Varus or valgus cannot occur, and therefore the inverting and everting muscles, if they are acting, are free to be used to reinforce the flexors or extensors of the one remaining joint, the ankle.

We transplant tendons, when by so doing we can make better use of the remaining muscle power of the limb. Some transplantations which are anatomically possible do not produce a functional result which justifies their use. Many of the complicated transplantations which have been devised, such as that of the pectoralis major into the deltoid, are valueless. A muscle will not function well if its direction of pull in its new situation is at a considerable angle from the original one. Single muscles cannot be transplanted with advantage into their opponents. Nor can muscles whose normal action is phasic—that is, to carry out single movements—be used to do the work of postural muscles—that is, muscles which maintain the position of the body against gravity. For this reason, as Bankart has pointed out, transplantation of the hamstring muscles into the patella give very disappointing results. The best results are obtained when muscles are used to reinforce others of the same or of a similar group. Thus, after the operation of arthrodesis which I have described, the tibialis posticus, which is a flexor of the ankle as well as an inverter, may be transplanted into the tendo-Achillis. The flexor longus hallucis and the flexor longus digitorum may also be used for the same purpose, the three together giving a very useful degree of power in the movement of ankle flexion, especially as the lever through which they act is considerably longer in the arthrodesed foot. The extensors of the toes may be used to reinforce the extensors of the ankle. Where ankle extension is ill-balanced, the peroneus tertius may be anastomosed to the tibialis anticus to correct eversion, or the tibialis anticus tendon may be split and one-half of it attached to the peroneus

tertius to correct the opposite deformity. The quadriceps may recover to an extent that enables it to extend the knee when the patient is sitting down, but is insufficient to withstand the strain of walking; in such cases the ilio-tibial band may be transplanted into the patella, making the tensor fasciæ femoris an accessory extensor of the knee joint.

Many limbs which have little muscle power may be very useful when supported by permanent apparatus. It would be out of place in this demonstration to explain the many appliances which are used, but the important points are that they should be simple, cheap, and able to withstand the hard knocking about which they suffer at the hands of the cheerful and energetic cripple.

The Lymphoid Tissue of the Upper Respiratory Tract

A Clinical Lecture by T. B. Layton, Esq., D.S.O., M.S.

(*Concluded*)

II—TONSILS (*continued*)

(*c*) *Will the good that the operation may be expected to do outweigh the risk, the pain and the unpleasantness to which the patient must be subjected?*

Of this triad, risk is the important one, and I would again draw your attention to the Hippocratic maxim which we have already considered.

When we advise an operation we have to ask parents to put their children's lives in our hands, without letting them think the operation is devoid of risk and yet without revealing to them all the surgical tragedies we know to have occurred. I feel sure that if we told parents of all the happenings I am about to recount to you, few, if any, would allow an operation to be done upon their children's tonsils and adenoids. The great responsibility which we take in refraining from divulging these things makes me feel we must never advise this operation unless it is really needed. I think a doctor can hardly realise this responsibility when he or she allows the parents to go away with the feeling that "there is no danger in it" or that "it is only quite a little thing."

I have no hesitation in saying that the operation upon tonsils and for adenoids in a child is a far more serious matter than most of the simple mastoid operations that we perform on these patients. There is this difference between these two operations: the disease for which the mastoid operation is done is one that may be followed by lethal complications; the lesions in the lymphoid tissue of the upper respiratory tract are not. The development of operations upon the tonsils and for adenoids may have given many a greater degree of health and may have relieved people of painful disorders, but I doubt whether they have saved or prolonged many lives.

ANÆSTHESIA

The first thing to which I wish to draw your attention is the possibility of death under the anæsthetic. Two such deaths have been recorded in the public press from the Coroners' Courts of London within the past few weeks. The increase of deaths under anæsthesia during the past 12 years is to my mind the most important surgical problem of the day. It is impossible to dissociate those occurring in operations upon tonsils and for adenoids from the larger problem of all cases. As very few seem to realise the great increase of these tragedies in England and Wales I have abstracted the total number from the Registrar-General's returns and placed them by the side of the number in tonsil and adenoid operations, which form one of the largest sub-groups of this list.

I do not propose now to go into the steps that should be taken to diminish this terrible list. I do, however, want to make certain observations upon the standpoint from which we should look upon this problem in relation to advice given to patients and parents.

(1.) The explanation usually given is that the increase of deaths has proceeded *pari passu* with an increase in the total number of anæsthetics administered. I think this is quite untenable. It is true that there are no records of anæsthetic administrations, but it is certain that these have not multiplied by two and a half in eleven years. When one thinks of the work at Guy's over 25 years I doubt whether the increase of operations has been that in that period, and even if one takes into consideration the increase in population, and the increase of smaller hospitals all over the country, there cannot now be two and a half as many anæsthetics given annually as in the year following the war.

(2.) But even if there were it would make no difference to the seriousness of the problem. Everyone of those anæsthetics was administered on the advice of a medical man, and we have no right to advise the administration of these dangerous drugs more freely unless at the same time we are in a position to administer them more safely.

(3.) This is a matter for the surgeons as much, or even more than, for the anæsthetists. We surgeons are those whom the patient or the parents interview; it is we who advise the operation and, therefore, incidentally we advise the administration of the anæsthetic. It is into our hands that they put their lives or those of their loved ones. Usually they never see the anœsthetist; frequently they have never heard of him. He is not even a name to them. They rely entirely upon our word for their safety. I neither know nor care what the law is on the point. Morally we are responsible, and the problem of deaths under anæsthesia is ours as much as the anæsthetist's.

(4.) Nor are the physicians and general practitioners entirely free from responsibility in the matter. Usually the latter are alive to this point, and will not allow their patients to undergo operation if they think them unsuitable for anæsthesia, but I do not find physicians to-day alive to their responsibility. It is a common thing for physicians to talk as though throat surgeons were mere tonsil snatchers, but it is from the physicians that pressure is now coming for the performance of operations or instrumental examinations under general anæsthesia without any assessment of the relative advantage likely to be gained in proportion to the risks taken.

(5.) It is to be regretted that many members of the profession do not realise the seriousness of this problem. Two recent occurrences may be recounted as examples of this. For many years we have had an annual return of the number of anæsthetics administered at Guy's, and as an appendix to that return there have been recorded in full all cases of death under anæsthesia that have occurred within the year. I have always believed that the object of that appendix was to bring before all concerned the seriousness of these fatalities. Yet so little has that been learnt that after a recent return had been published the only lesson that the "Passim-ist" of the hour in the *Gazette* could bring forward was one of self-complacency in that the total number was so few. Gentlemen, I shall not be satisfied until the year has come and been repeated in which not one single death under anæsthesia has occurred within the walls of Guy's.

The other occurrence is one from a recent Coroner's inquest. The account of this I did not see myself, and only have it as hearsay from a fellow-practitioner who read of it in the press. There it was reported that the Coroner congratulated an anæsthetist in that he had only had four deaths in a series of 20,000 administrations. I think wrong this attitude of mind that *any* proportion of deaths to administrations can be looked

All Operations					Notes
	M.	*F.*	*Total*	*T.&A.*	
1919	182	120	302	28	
1920	214	152	366	29	(1.) From 1919 to 1925 the tables differentiated between tonsil operations, adenoid operations and tonsil and adenoid operations, the figures being :— Tonsils .. .. 60; Adenoids .. .. 19; Tonsils and adenoids 77
1921	204	133	337	21	
1922	185	151	336	17	
1923	262	184	446	23	(2.) From 1919 to 1925 there are recorded the deaths for tonsil and adenoid operations and some other operation performed under the same anæsthetic. They number 13 in all, of which four were in the five years 1919 to 1923 and three in each of the years 1924, 1925, 1926. The other operations being :— Septum .. .. 5; Glands or abscess in neck .. .. .. 5; Mastoid .. .. 1; Polypus .. .. 1; Lymph tissue at base of tongue 1
1924	245	184	429	24	
1925	249	193	442	24	
1926	306	250	556	32	
1927	328	268	596	45	
1928	384	272	656	26	
1929	414	316	730	49	

upon in an attitude of complacency. Until we change that frame of mind we shall not begin to solve this problem.

(6.) I have, perhaps, dwelt overlong upon this subject. I have done so because I am a teacher of surgery, and because it is us teachers that must keep before you students problems that we must solve, crises that we must face, and ideals to which we must try to attain.

SEPSIS

Sepsis is another great danger to which patients are liable when operations have been done upon their tonsils and for adenoids. In the great majority of operations that we perform to-day we can either prevent or control sepsis or the spread of it. In operations upon tonsils or for adenoids we can never do this. By the very determination to operate we postulate that we shall operate across an infected area and leave behind a raw wound. We may light up by operation any infective condition which we hope to allay, but nowhere in the body are the consequences of this lighting up so alarming and disastrous as after an operation upon the tonsils or for adenoids.

Three times have I known meningitis to result from an operation upon adenoids as a result of a direct spread of inflammation through the base of the skull. The first was a case upon which I did a post-mortem in the year 1909. The second was a case of cavernous sinus thrombosis to which I was called for an opinion some five years ago, and the medical superintendent told me that it was the second case of this condition after an operation for adenoids that he had had in his hospital within the year. The third I have recorded in my paper on "Hæmolytic Streptococci in the Mastoid" (Case 18), in a recent number of the *Guy's Hospital Reports*.

On hearing of such tragedies one first thinks they are due to some error in technique or want of judgment as to the time at which the operation has been done, and one is tempted to give thanks that one is not as those who do such things, but an occasion such as the following makes us humble. Within the last two years I performed very gently an operation upon the otological adenoids of a child who seemed to be quite healthy. Forty-eight hours later his temperature rose to 104° F.; he developed an hæmolytic streptococcal septicæmia, which finally subsided with fixation abscesses in his right sterno-clavicular and right hip-joints.

On two occasions I have performed operations for acute mastoiditis upon children who had recently had their tonsils removed. One was a severe case that finally recovered, but the other was a desperate case with a spreading osteomyelitis of the bone and a thromboid lateral sinus that we were unable to save.

I know of no way to be sure that such things cannot occur; the only advice I have to give is, never to operate when there is the slightest suspicion of any acute inflammation being present. I simply am unable to understand the suggestion that has been made recently that the tonsils should be removed in cases of quinzy. In my own case quoted above the temperature was 99° F. on the morning of the operation, but the child seemed quite well and there was no sign of inflammation in the throat.

HÆMORRHAGE

The third great danger in these operations is that of hæmorrhage. As a surgeon gains experience his technique so improves that hæmorrhage does not occur, but even then the anxiety may come upon one as a thief in the night. A year ago I was dissecting out the tonsil of a healthy young adult woman when a bleeding occurred so sudden and so stupendous that I feel sure she would have been drowned on the spot had we not had an intra-tracheal tube through her larynx. We were unable to stop the bleeding at the time, and had to put her back to bed with a clamp upon the tonsillar area. Twenty-four hours later we managed to arrest this hæmorrhage with a suture through the palate after it had recurred on removal of the clamp, but she died that evening some 36 hours after the first onset. From this case I want you to learn two lessons.

The first is that there is no reason to postulate an abnormal carotid artery or any branch thereof to account for this bleeding. I believe that in sweeping around under the anterior pillar I swept longitudinally into a vein without dividing it. I suppose there is no more potent or common cause, other than deficiency in clotting, for the failure of Nature's arrest of hæmorrhage than the partial division of a vessel, and the walls of a vein are more easily held open by the surrounding tissues than are those of an artery.

In surgery you must give to Nature the credit for nearly all your success, but you must take the responsibility yourself for all your failures.

The second lesson that I want you to learn from this case is that the girl in the end did not die from her loss of blood, but from the treatment that we administered to combat the collapse from which we thought she was suffering as a result of that loss. My experience of the war was that the healthy young adult has an extraordinary power of recovery from loss of blood once the bleeding has been controlled; and when we had stopped the bleeding in this girl I gave a good prognosis

to her father, saying that she would now recover. From what then did she die? She died of œdema of the lungs, the result of the injection of too much gum arabic solution too rapidly given. This was done at about 11 o'clock; by 3 p.m. she needed a tracheotomy for an œdema of the larynx. We were at a loss to understand this at the time, thinking it might be due to the clamp. An attempt was made to adjust this, but the moment the pressure was relaxed the blood poured up into the mouth again. The medical man in whose charge she was under me thought that the physical signs indicated a pneumonia. But pneumonia does not come on, let alone kill a patient, in twenty-four hours, and after due consideration I have come to the conclusion that the condition was an œdema of the lungs, and that it was the same lesion as the œdema of the larynx for which the tracheotomy had to be done. Cases are on record of this having happened as a result of an excessive injection of gum solution. When you are faced with an emergency such as this was you must not rush blindly at restorative treatment, but must weigh all the more carefully what you should or should not do.

Without going into more remote anxieties, such as the occurrence of acute infectious disease in patients who have recently had an operation upon their tonsils or for adenoids, I have said enough to indicate that the risk of these operations, both in children and in adults, is definite and undeniable, and that neither should be subjected to them unless the benefit to be obtained is considerable and fairly certain to occur.

But supposing the risk were nil or negligible, we have still to consider the unkindness of submitting the patient to the pain and unpleasantness of his tonsils removed either unnecessarily or when the benefit likely to accrue will not outweigh these two.

FOCAL SEPSIS

It is particularly in association with the tonsils as possible sites of sepsis which may have influence on some distant lesion that I would have you consider this point. The final results must be decided by the physicians who treat the various lesions, and it is for this reason that I would again stress their responsibility in advising and even urging these operations. I used to say that it was the business of the throat surgeon merely to say whether or no the tonsils were a source of sepsis, and I used to refuse to give any opinion as to whether they should be removed for some distant lesion such as flat-feet; but I found that even some for whom I had the highest respect were unable to appreciate this standpoint, and in the course of time one has naturally come to have opinions on the subject. I may, therefore, exemplify my point by discussing the relation of focal sepsis in the tonsil to the rheumatic diseases.

In the true acute rheumatism I hold to the views that have been put forward at Guy's by the late Dr. Hunt and subsequently by Drs. Campbell and Warner, that tonsillar sepsis holds no direct relation to the acute rheumatism, and that they should only be removed for recurring follicular tonsillitis as a part of general treatment of the patient, and not as a part of the specific treatment of the rheumatism. In the case of chorea, I would add a warning that, so far from curing the lesion, the operation may make it very much worse. Indeed, two of the most intractable cases of chorea that I have ever met arose immediately after I had removed the child's tonsils, without there ever having been any suspicion of any chorea previous to the operation. When the operation is done in a case of chorea it should only be done when this is quiescent, and it is my practice to keep the child in bed for a week before the operation and after it for at least a fornight and until the wounds are well healed.

When we pass from acute rheumatism to the rheumatoid arthritis of the young adult woman the case is altered. We have here a lesion which seems to me definitely to have been proven to be due to focal sepsis, and it is a disease which, if not stayed, is terribly crippling to the sufferer. It seems that the patient may well be submitted to the pain and unpleasantness of tonsillectomy, not only when it is felt that the operation definitely will be of value, but even when there is a possibility that it may so be.

But with the same disease in an older woman who has already reached middle age and in whom the disease has so progressed that the bony changes have occurred in the joints, the chances of improvement are slight. After all, it is the pain of which such a patient complains, and removal of tonsils is not going to prevent pain in such joints. It is in cases such as this that it seems to me physicians are unkind in demanding operation. However correct the pathological reasoning may be, the practical improvement is likely to be very slight, or even nil.

When we pass to the plethoric, weighty man of late middle age suffering from "fibrositis," the criticism may be put much more strongly. The likelihood of improvement is very near nil, but the risks and anxieties of operation are considerable both from the point of view of the anæsthetic and of hæmorrhage. It is nearly ten years since a distinguished physician sent me a doctor, then nearing 60, with the advice that his tonsils should

be removed. The patient weighed near 18 stone, and carried on practice without a motor car, using occasionally a 'bus or a tram. His only complaint was pain in his knees. He still carries on that practice, and I know not whether he is more grateful to me for having subsequently removed the tonsils of his two daughters or for having urged him not to have his own touched. From the cases I have sent me it would appear that every pain in the middle-aged is now labelled "fibrositis," as though persons over 40 did not frequently get joint pains whenever the weather turns wet or whenever their bowels are a bit upset, not to mention the possibility of its being gout. During the war I used to refuse to allow to pass my field ambulance any patient complaining of a pain who could not show an objective symptom to account for it. Subsequently I have often thought of the aches and pains with which men over 40 in the tunnelling companies were sent back by me to the trenches. Were we shortly to have another war, they would, I suppose, all be sent down the line to have their tonsils removed.

In all these distant lesions the most important point in deciding whether improvement will result from removal of the tonsils is whether they have ever caused trouble locally. I am not denying that tonsils may be a source of sepsis without any history of there ever having been a sore throat, but I do deny that they often are. If there is no history of tonsillitis the benefit to be obtained is problematical. We are back, then, to where we started, that if there is a history of three attacks of follicular tonsillitis in a twelve-month there is a good chance of improvement. This is especially likely to occur if there has been an exacerbation of the rheumatic symptoms during the acute attack. The same principles must apply where the distant lesion is in the eye, the skin, the stomach, or other organ, disease of which has been attributed to focal sepsis.

"THE WAGE-EARNING CAPACITY"

We owe to Lane the conception of the wage-earning capacity of the individual as a guide to treatment. To my mind it is as important as the saving of life, and I feel that any doctor has as great a right to glow with pride when he has kept an individual at, or returned him to his full capacity as he has when he has saved his patient's life. For this reason I am prepared to advise operations in doubtful cases in the young when the wage-earning capacity is at stake when I should oppose it were this not so. I do not think we can ever give an absolute guarantee that the tonsils can never be a source of sepsis, and even where there is no evidence of their being so I am prepared to agree to operation where the future of a young adult is at stake. I have already given one example of this indication for operation in rheumatoid arthritis of the young woman. Deafness is another. I do not think there are many cases of deafness that can be benefited by removing tonsils, but where there is such a case I think it well they should come out in case one is refraining from affording in time a relief that may do good. This, of course, only holds good where the lymphoid tissue is no longer of value to the individual, and one cannot say that this is so in the child.

In them, however, the converse also holds good, and it is because I believe the seeds of deafness may be and are being laid in the young to-day that I am so opposed to the exenteration of the lymphoid tissue in the child.

I used to think an attack of acute nephritis was an indication for the removal of tonsils in the same category as this, but I understand now that the physicians are laying less stress upon its value than they were, and that this disease is now ranging itself alongside of acute rheumatism so far as tonsillectomy is concerned.

WORK AND WEATHER

While we are on this subject of work let us remember that in certain occupations one cannot expect to get the same results from operation as under normal circumstances, and, therefore, this should be the determining factor in a doubtful case. We had such a case at Out-patients the other day, where in weighing all the evidence we were still undetermined whether the tonsils should be removed or not, and we found the man was a paint-mixer constantly working in a cloud of dust, which got into his nose and throat, and we felt that some of the changes seen were the reaction of the tissues to this dust and that some of his attacks of sore throat were the result of this rather than of any infection. So we allowed his occupation to decide us against operation.

And as to weather. Remember that bad weather makes much greater the risks from pulmonary complications of any operation upon the upper respiratory tract, and that this applies especially to the young and to the elderly. I am sure that it is better not to remove tonsils in the winter, unless there is some special reason for not deferring the operation until the spring, and on medical grounds such reasons are rare. Once the November days have come in it is better for the patient to retain the tonsils till the middle of March if they have not already been removed.

"Beyond all Peradventure"

CONCLUSION AND SUMMARY

In conclusion, I would not have you think that I have exhausted all the points of this great subject in these three lectures, and I would summarise my teaching thus :—

(1.) That you should give as much consideration to every point for or against it before advising any operation upon the lymphoid tissue of the upper respiratory tract as you would if you were considering the opening of the abdomen.

(2.) That it is of vital importance to conserve the lymphoid tissue of the upper respiratory tract in the young.

(3.) That if it can be helped no operation should be performed upon the lymphoid tissue of the upper respiratory tract of a child under five, and perhaps under eight or ten.

(4.) That at any age below adolescence when an operation is advised it is important to decide which mass of lymphoid tissue is doing harm and to remove that and that only.

(5.) That even in the adult under certain circumstances the lymphoid tissue of the upper respiratory tract may have its value, and that in such cases to remove it makes the person worse.

(6.) That there is no operation in surgery which in proportion to its size has a greater number of minor complications or of serious risks, and that it is only when the results to be obtained outweigh these risks that an operation should be performed.

(7.) That even if there were no risk the pain and inconvenience of the operation is such that it should not be advised without strong evidence that improvement will result, unless the wage-earning capacity of the individual is so likely to be impaired that it may be advisable to perform the operation on evidence that otherwise would be insufficient.

(8.) That operations upon the lymphoid tissue of the upper respiratory tract should not be performed in the winter, if possible.

Local Views

(Continued)

CHAPTER II

Mainly Domestic

THE end of August saw us comfortably in possession of " that messuage and dwelling-place known as Red Acres Farm," as the title deeds described the old Sussex farmhouse which we had bought. We had been attracted by " Red Acres " on our first visit to Sheepfold, and, the price being a reasonable one, we bought it without delay. A farm had stood on the site since the time of the Doomsday Book, but the present building bore the date 1683 over the large front door. We came upon it when we passed down a quiet lane which left the main street just beyond the " Fountain Inn." After walking about 200 yards we saw a board leaning drunkenly over the hedge and bearing the legend " These Desirable Premises for Sale. Vacant Possession. Apply Messrs. Chawmer & Swift, High Street, East Grinstead." We went in through the fine hand-forged gate, which my wife guessed (and rightly) to be the work of Jim Hadlow and beheld " Red Acres " lying comfortably in the brilliant sunshine like a sturdy red-faced yeoman taking a well-earned rest in the heat of the day. For a moment we stood just inside the gate and gazed in silence up the broad drive, letting our eyes feast themselves upon the fine old building. It was built of warm red brick reinforced by timber which had been placed in an irregular and apparently haphazard way in the walls so that all manner of angular designs and bulgings were formed. The windows, latticed and diamond-paned, gazed sleepily out at us from their uneven setting. The roof was of thatch, and it gave the whole place such an inviting air that we started a tour of inspection without more ado. The drive was flanked by a rose garden, a wild profusion of joyful colour, flagged paths and rustic arches laden with ramblers.

We walked round the house, peeping in through the windows at the rooms, catching glimpses of uneven floors, massive wall and ceiling timbers, and open fireplaces which filled us with delight. To one side of the house was a great cobbled yard on to which opened stables and barns mellow with age, but crying out for horses, hens and cattle. Of the rolling, fertile acres which gave the place its name but four remained, the rest having been sold at different periods to surrounding farmers ; but those four acres—what a kingdom ! A little copse of Spanish chestnuts, dainty silver birches and three vast oaks ; an old English garden with a sundial and a bird bath, mossy flagged paths and roses in full bloom ; a large lawn with four majestic elms and four large beds a riot of colour. Bees hummed, birds sang, and the air was heavy with the scent of flowers. From the village came faintly the tinkle and clang of Jim Hadlow's hammer as he toiled away at the General's gates.

The next day Mary and I did business with Messrs. Chawmer & Swift.

" Red Acres " required a domestic staff.

" I think we had better go recruiting in the village," I suggested.

Mary looked doubtful. Didn't I think we would be better suited (as they say in registry offices) by a cook and a house-parlourmaid from Tonbridge Wells or East Grinstead?

" No," said I, very firmly, " that would never do. We must see what Sheepfold can produce in the way of trusty retainers. I mean it is only fair to the place after all. Look here, what about consulting Joe Applewell? He would be sure to know if there is anyone wanting a job."

Mary looked at me rather hard for a moment, but I pretended not to notice her glance and made a great show of filling my pipe.

" I think it would be better to see Mr. Hadlow," she said, after a pause. " He would be much more likely to know."

" Why? " I asked.

" Why not? "

" Well, I mean, why should he? He's only the blacksmith, and the village does not rush round to the smithy to discuss its scandal and tell its news. It goes round to the ' Rose and Crown ' and the ' Fountain ' of an evening and broadcasts its opinion over a pint of ' ol' an' moild.' "

" I still think Mr. Hadlow will know best," said Mary firmly and with that complete lack of reason which makes the fair sex so attractive and at the same time (let us confess) so exasperating.

" I know! " I cried brightly. " You interview Hadlow and I'll have a quiet talk with old Applewell."

" We will both see Mr. Hadlow first," said Mary.

" Well, what I mean is ——"

" Now! "

" Oh, all right."

Then, as we walked out of the front door, Mary whispered, " You shall have your little drink after we have been to the smithy." Which bears out what I have always maintained, that a little diplomacy nearly always has a satisfactory result in marital disputes.

A grimy and perspiring Hadlow looked up from the anvil over which he was bending as he tapped away at a strip of red-hot metal. The General's gates, almost complete, lay upon the floor.

" Good evening, Madam; good evening, Sir," said he, stretching his mighty limbs.

" Good evening, Mr. Hadlow," said Mary. " I—that is to say we—want your help. Do you know anyone in the village who could come up and cook for us? Oh, and we want a housemaid too."

Hadlow scratched his head with the shaft of his hammer for a moment. " I don't rightly know as I do," he said slowly. I was standing a little behind Mary, and I caught the steady blue eye of the smith over her shoulder. I directed my gaze through the wide-open door and contemplated the exterior of the " Rose and Crown."

" But I knows of someone who would help 'ee like," he said with a grin.

" Who's that? " asked Mary.

" Joe Applewell," replied Hadlow.

It took all my self-control to refrain from shaking him by the hand. I hastily initiated a concentrated inspection of the General's gate instead. I was only just in time, for Mary turned round sharply.

" Eh, what's that? " I said.

" Mr. Hadlow said that Mr. Applewell might be able to help us," said Mary, looking at me rather hard.

" Oh, ah! Yes. Very good idea. I might have thought of that myself. You had better come along, too, Hadlow, just to see fair play."

" That's very kind of you, Sir. I've been getting thirsty this last half-hour. Them gates 'll be the death o' me. Very partic'lar ol' gentleman is the General, but I shall get 'em done afore sundown."

I don't think it was Hadlow who pinched me as I turned towards the door.

Joe Applewell was in some doubt at first whether Sheepfold could supply what we wanted, but after his second pint of beer his doubts seemed to fade away.

" You see, Sir," said he, after a lengthy pause in which he scratched and shook his head by turns while his lips worked away at each other in the intervals when they were not applied to his tankard, " it's like this 'ere. My wife 'as a sister." He made this announcement in the manner of one who tells a secret of international import. " But she's deaf, Sir, if I may say so. Deaf as a post, as the saying goes. She's a rare good cook, Sir, but as deaf as a post, Sir. Can't 'ear a word! "

Mary looked doubtful and my mind for some obscure reason strayed away to the Bible, and I thought of the man who had been asked by his child for a fish and the parent promptly handed his offspring a scorpion. I had a brief but unpleasant vision of being confrounted with a dish of tripe when I asked for a steak. In my youth I had held the secret opinion that the man must have been very deaf to have made such an unfortunate mistake. If it was a practical joke it was certainly going too far.

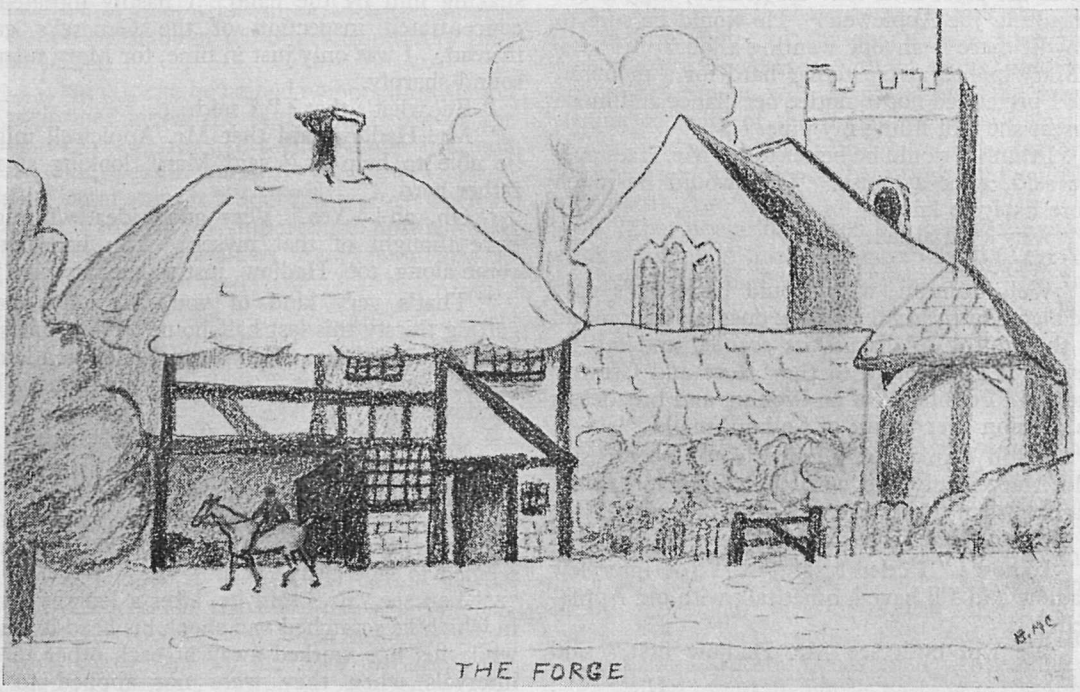
Hadlow's rumbling voice interrupted our thoughts: " Elizabeth Pound is as fine a cook as ever I've known, and I've known some pretty

fine cooks in my day. Her jugged hare's a treat." He went on in what for him were dreamy tones : " A fair treat, what with that and a Charlie's Nob* to follow, makes you feel that the King himself would envy you."

All this sounded very good to me. It made me feel hungry. I looked across at Mary, and she looked at me. She raised her eyebrows in an inquiring sort of way. I gave a slight nod in answer.

stout ; she bulged in every conceivable direction. Her round, red face wore a perpetual smile of vacant amiability, and her little blue eyes twinkled away as if there lay behind them some never-failing source of merriment. We murmured greetings all round.

" Elizabeth," bellowed Mr. Applewell, " a lady 'ere, Mrs. Bewlay, wants a party to do a bit o' cooking for 'er. I thought per'aps you could oblige."



THE FORGE

" Is it possible to see her now ? " Mary asked.

" Aye, she's out in the kitchen giving the wife a hand," replied Joe. " Would you like to go through, Ma'am ? "

" Yes, I should very much," said Mary, rising to her feet., " if it is not inconvenient."

" Quite all right, Ma'am, quite all right. Always welcome, if I may say so ! "

We followed Mr. Applewell through into the vast kitchen, where Mesdames Applewell and Pound were at work preparing a duck of noble dimensions for the roasting. There was nothing about their appearance to suggest they were sisters, for whereas Mrs. Applewell was tall, angular and somewhat severe of countenance (an unfortunate trick of Nature, for on acquaintance she turned out to be a most affable person), Mrs. Pound was of medium height and extremely

*Charlie's Nob is a purely local name for suet pudding. I have not yet been able to discover its true derivation.

" Pardon ? " said Mrs. Pound, beaming.

Joe Applewell repeated his remarks, his face taking on another two shades of purple in the process.

" That's very kind of Mrs. Pew," said Mrs. Pound, turning her beaming smile on us. " When would you like me to start, Ma'am ? "

This apparent settling of the matter took Mary by surprise. " Er-er-to-morrow," she said.

" Pardon, Ma'am ? " said Mrs. Pound.

" To-morrow ! " yelled Mary. " Can you come up at a quarter to eight to cook the breakfast ? We live at 'Red Acres,' she added, not unreasonably."

" Call at the baker's ? Certainly, Ma'am."

" No ! " I yelled, thinking it time I did something. " We live at ' Red Acres.' "

" Keyworth's sell the best bread," remarked Mrs. Pound with a wink.

" ' Red Acres ! ' We live there ! " I said.

" Yes, I know, Sir ; I saw you move in," said Mrs. Pound amiably.

" We will discuss wages to-morrow," yelled Mary. Mrs. Pound beamed. " I'll be there at a quarter to eight punctual," she said.

After a little further talk with Mr. Applewell and Jim Hadlow we returned home, feeling rather doubtful at the result of our expedition.

. . .

A week later saw Mrs. Pound permanently established at " Red Acres." As a cook she was superb, but as a conversationalist she was exasperating to a degree which at times made us feel frantic. Her inability to read anything but large print rendered an obvious means of communication with her irksome in the extreme, but her cooking more than compensated for her deafness, and we decided that she should stay. The housemaid problem was still unsolved. We had had one—a strapping wench named Emily, an efficient if noisy worker, but possessed of a devil, a fiend which chose to manifest itself in no uncertain manner at the most inconvenient moments. She had no less than seven fits in the three days she was with us.

The first of these occasions was the worst, for we had Aunt Maud and Uncle George to dinner at the time. Uncle George is a fussy and futile little man possessing great wealth and an extravagant idea of his own importance. Aunt Maud resembles a vulture as far as is humanly possible to do so, and is full of good works, which is to say that she has an infinite capacity for managing other peoples' affairs and generally interfering with their most intimate private business. She speaks chiefly in italics and capital letters. It is unanimously admitted by all who come in contact with them that they are a brace of plagues, but their great wealth, let me admit, causes them to be tolerated by the family and all classes of society.

The soup had come and gone to an accompaniment of loud porcine noises from Uncle George, who enjoys his food, and the fish was following the soup. Aund Maud was well under way with destructive criticism of our new home. Uncle George was champing his fish. Mary and I were outwardly docile, but inwardly fuming. Emily entered the room with the vegetables for the next course ; she had a dish in each hand, one containing a cauliflower submerged in white sauce, the other, new potatoes in a sea of melted butter. She stopped behind Uncle George and, giving vent to a loud unearthly cry, flung the vegetable dishes into the air and fell foaming at the mouth onto the floor. The devil possessing Emily had a deadly eye, for the dish containing the cauliflower turned a gentle somersault and, descending upon Uncle George's head, its creamy contents flowed in gentle cascades down his startled face. The potatoes, a buttery avalanche, slid gently into Aunt Maud's lap. Chaos reigned supreme. Uncle George leapt about the room scattering cauliflower and white sauce in all directions and trying with lamentable failure to clean himself with his table napkin and handkerchief, keeping up a running fire of expletives as he did so. Aunt Maud, after one undignified screech, was telling everybody what to do. Mary and I attended to the stricken Emily, and hampering each other's movements in our united efforts to get a cork between her teeth.

" Blast ! " spluttered Uncle George, " the damn stuff's going down my neck ! "

" Go upstairs to the bathroom, George ! Mary, *'phone* for a doctor ; leave Eustace to look after Emily ! No, *you* look after Emily and *Eustace* go for the doctor ; the girl's clothes need loosening. Stop *swearing*, George ! Why *haven't* you gone to the bathroom ? "

" How the he—, how the —, I mean how can I get there ? This bl—, this stuff's got into my eyes, dammit ! "

" Oh, *I'll* take you, George ! Come here ! I need a wash myself. Don't make such a FUSS ! "

The plagues, male and female, went upstairs, Uncle George muttering and Aunt Maud scolding. Emily regained consciousness and, gazing at us for a second or so in a vacant way, fell into a deep and peaceful sleep.

Twenty minutes later we waved farewell to a soiled, dishevelled and mumbling Uncle George, who made a pitiable attempt to preserve his dignity to the last, and an Aunt Maud whose last injunction was that we ought to arrange to have Emily put in a Home without delay. The unconscious subject of her remarks still lay sleeping noisily on the dining-room carpet.

(*To be continued*).

Guy's Hospital Gazette

(ESTABLISHED 1872)

A Journal of Hospital News, Medicine, Surgery and Dentistry

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The Editor will, at all times, be glad to consider articles or sketches, provided that they are accompanied by the writer's name and address, not necessarily for publication. The payment that the GAZETTE can offer is merely nominal. Authors who desire reprints of their papers should make their own arrangements with the printers when they return their proofs. All contributions to be addressed to *The Editor*, who does not accept responsibility for the views expressed by contributors.

Nursing News—Student Nurses' Unit

GUY'S nurses have always taken a keen interest in the College of Nursing. Our interest has been stimulated considerably by the work of Sir Cooper Perry, Dame Sarah Swift, and our present Matron, Miss MacManus; and we felt that Guy's Hospital should possess a student nurses' unit in common with many other hospitals. Fifty-two members have been enrolled up to the present time, and we hope to have many more as the new sets enter the wards.

The Matron has kindly consented to act as President and Miss Dryer, the Assistant Matron, and Miss Gration, the Sister Tutor, were elected Vice-Presidents.

One of the first activities of the section was on July 29th, when Mr. Isaacs, M.P. for N. Southwark, addressed a large meeting of student nurses in the general sitting-room of the Nurses' Home. He analysed the Fenner Brockway Bill, and agreed that it was impracticable, and pointed out that, once a Bill had been passed in Parliament, it was very difficult to get an amendment. Mr. Isaacs said that, as a printer, he would be very averse to Parliamentary legislation in his sphere of work, and he thought that nurses likewise should manage their own affairs—at which there was loud applause. When the subject was opened for discussion it was evident that the majority of nurses were against the Bill, and the few who spoke in its favour were over-ruled.

On September 3rd, Miss Carter gave a most interesting lecture on art. The lecture was illustrated with lantern slides of many famous pictures typifying the art of different periods. Miss Carter described the essentials necessary for the construction of a good picture, and pointed out the many devices employed by the artist to create the required atmosphere. At the conclusion a hearty vote of thanks was passed to Miss Carter, and to Miss Smith for showing the lantern-slides.

Reviews

A Handbook for Nurses. By J. K. WATSON, M.D. (Edin.). Published by Faber & Faber, Ltd., 1931. 1,015 pages. *Price* 10*s.* 6*d.*

THE fact that this volume has reached the ninth edition is in itself sufficient praise. The work has been brought up to date by the inclusion of new matter upon Diathermy and Radium, the latter now so much to the fore.

The general aim of the book is to provide knowledge required by the General Nursing Council in its examinations, and at the end of the book are re-introduced copies of papers set by this body at recent examinations.

The author has with commendable skill been able to include under one cover the subjects of Anatomy, Medicine, Surgery, Gynæcology and Nursing, in each instance discussing just those aspects of the particular subject, that the nurse may reasonably be expected to master.

The book is pleasant to read, and contains plentiful illustrations and margin headings, which add to its attractiveness. It is not only a complete handbook for nurses, but should prove invaluable to those who teach them, by providing a basis upon which to work, and help in estimating the standard that is now required.

Surgical Pathology. By BOWLBY and ANDREWES, revised by Mr. GEOFFREY KEYNES. Published by J. & A. Churchill, 1930. 625 pages, with 224 illustrations. *Price* 21*s.*

IT is ten years since the seventh and last edition of this well-known work from St. Bartholomew's Hospital was published, and the eighth edition has been revised by Mr. Geoffrey Keynes, who has preserved the general character of the book unchanged.

The arrangement remains the same, except for an additional chapter on "Tumours of the Brain and Spinal Cord," and some new illustrations and X-ray photographs.

The book aims "to describe as simply as possible the various pathological processes which are of interest to the student of Surgery." This claim is fulfilled very well, and controversial subjects are not discussed. At times one feels the description could be a little more full—but doubtless this has been specially avoided to keep the volume within reasonable limits.

The book can be strongly recommended to the student of Surgical Pathology—a subject which must always be the foundation of surgical knowledge and practice. It will, doubtless, share the popularity of its predecessors.

Hospital Information, etc.

Papers by Guy's Men

H. W. Barber. Eruptions involving external auditory meatus. *Jour. Laryng. & Otol.*, 1931, xlvi, 589.

N. L. Eckhoff. Tourniquet paralysis, *Lancet*, Aug. 15, 1931, 343.

Birth

LEVISEUR—On July 31st, 1931, to Beryl, wife of E. A. Leviseur, M.B.—a daughter.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

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PASSIM

THE advent of October marks for many an important landmark in their careers, for the majority of those whose names appear on the list of new students have recently left school to follow the profession of Medicine as their life's work. To many of them the first few weeks will be, perhaps, rather discouraging and disappointing. Much of the time and work spent on Chemistry, Physics and Biology may appear to have little connection with Medicine. We could never understand how the life history of the male fern, the intricacies of the Wheatstone Bridge, or the production of commercial sulphuric acid could have anything to do, say, with the operation of appendicectomy or the treatment of pneumonia. And, having cleared the first hurdle, the prolonged and detailed study of Anatomy and Physiology may become somewhat wearisome.

But those of us who have stumbled through six or more years in the Medical School and Wards can, with the knowledge born of painful experience, assure the new student that a clear understanding of these subjects will be a considerable help to him in his Clinical studies. When he has disposed of the Pre-Clinical Sciences he will plunge, with a sigh of relief, into the wards, but every now and again there will crop up some point in diagnosis or treatment which will bring him back with a jerk to his days in the Medical School.

We would, therefore, exhort him to read, mark, learn and inwardly digest the articles written for his benefit by those who have been through the mill. For ourselves, we read them, but we have since had occasion to regret that we did not take more heed of their contents.

Apart from his medical studies, the student has every opportunity to take part in the varied and manifold phases of Hospital life. Some of these are mentioned in the *Gazette*, and we hope that before long he will become an active member of at least one Club and Society.

To those returning to the haunts of their student days after an absence of even a year or so the two most striking changes in the outward appearance of the Hospital buildings must surely be, firstly, the new Out-Patient Department, now under construction, and, secondly, the Hospital Shop. This latter edifice has appeared unobtrusively during the last few months in the shadow of Shepherd's House, and is now officially opened. Its purpose is for the sale of small articles which may be needed from day to day by patients, nurses and students. The first-named may make their purchases personally or through the offices of the nursing or domestic staff. The Shop will be open from 9 a.m. to 5 p.m. every week-day and from 9 a.m. to 1 p.m. on Saturdays.

The diversity of the range of goods displayed is not the least of its attractions. Thus the student hurrying to an early Pathology class may pause a moment to supplement his scanty and ill-digested breakfast with a variety of confections. The nurses, too, may now at reasonable cost obtain smoothly-flowing fountain pens which will earn the approbation of House-men on their rounds.

The ease of attainment of such well-recognised necessities of life as tobacco and razor-blades will commend itself to the male element of the Hospital community. Similarly, the patronage of the fairer sex has been courted by the display of such commodities as stationery, chocolates and the choicer varieties of perfumes. But perhaps the most alluring attraction to all in this time of financial depression is the fact that articles in the Hospital Shop, with the exception of tobacco and cigarettes, will be sold at prices below the level of those prevailing in the outside world.

All profits that accrue from this enterprising venture are to go into the Hospital funds. We do feel, therefore, that it is incumbent upon all of us at Guy's to ensure the Shop's success by patroni-

sing it whenever we can. And in this special number of the *Gazette* we make a particular appeal to students to purchase articles at the Hospital Shop rather than elsewhere.

THE following are to be congratulated on their appointment as Clinicals :—

W. H. Bradbeer	G. A. Hall-Smith
A. M. Canton	J. H. Howell
H. A. Constable	C. E. R. Wood

We would like to take this opportunity of welcoming the return to the Hospital of Mr. A. Simpson-Smith and Mr. R. C. Brock, to take up their duties as Surgical Registrars.

THE Winter Session was opened yesterday by Sir Farquhar Buzzard, who delivered an address on the General Medical Council. We hope to publish this in full in our next issue.

Post-Graduate Course During Week of Biennial Dinner

The following Post-Graduate Demonstrations and Clinics will be held for Old Guy's men during the week in which the Biennial Dinner will take place. All old Guy's men who are able to attend are cordially invited to do so. No fee will be charged.

Friday, October 16th.

11.30—12.30. Dr. J. A. Ryle, on " High Blood Pressure and its Effects " (Anatomical Theatre, Medical School).

11.30—12.30. Mr. Grant Massie, Demonstration of Surgical Cases (Clinical Theatre, Surgical Block).

2 p.m. Dr. A. F. Hurst, Special Ward Round in Mary Ward.

2 p.m. Mr. F. J. Steward, Special Ward Round in Luke Ward.

Saturday, October 17th.

11 a.m. Mr. W. H. Trethowan, Special Ward Round in Christopher Ward.

11 a.m. Dr. J. J. Conybeare on " The Treatment of Diabetes " (Anatomical Theatre, Medical School).

11 a.m. Mr. T. B. Layton, Demonstration of Cases in Ear, Nose and Throat Out-Patient Department.

2 p.m. Dr. C. P. Symonds, Neurological Demonstration in Out-Patient Department.

2 p.m. Dr. E. P. Poulton and Dr. J. M. H. Campbell, Special Ward Round in Mary Ward.

2 p.m. Mr. C. H. Fagge, Special Ward Round in Lazarus Ward.

Reflections on Medicine as a Career

By J. Fawcett, Esq., M.D.

MORE than 50 years ago Medicine appealed to me as the most desirable of all professions, and after 46 years' experience of it my choice would be the same had I to start again.

To those who regard it as essential that their work in life should bring them into intimate contact with their fellow-men on the one hand, and yet leave them freedom of choice and space in which to exercise their individual preferences on the other, Medicine offers a wide and prolific field. The field is, indeed, so extensive that to the budding student at first sight the boundaries, perchance, seem almost lost on a limitless horizon, and the goal at which he aims well-nigh beyond his reach. And yet in a few days, or weeks it may be, he realises that the land he has entered is a friendly one, that the powers that be have so regulated his path and ordered his going as to make clear his way, and even to perceive a glimmer of the love for hospital and school ingrained in Guy's men all the world over, and so to appreciate that, although the going may be hard, yet it is the same on any track worth following, and that, on the whole, his lot is cast in pleasant places.

To all except a very small minority our ultimate selection of Medicine is based on the fact that it is to be our source of livelihood, apart from any other reasons which may attract us to it, and there is this comforting thought which we may lay to heart, even should we not attain so great a measure of worldly success as we had dreamt of, that, barring accidents and given the God-sent blessing of good health, there is no need whatever to fear an inability either to earn sufficient to live in comfort, or to meet the usual calls, social or domestic, which life may have in store for us.

In truth, Medicine has much to tender in these days, in no direction more so than amongst the multifarious and onerous claims of general practice, of being all things to all men, and, as one of its greatest privileges and compensations, the possi-

Guy's Hospital Biennial Dinner, October 16th, 1931

CHAIRMAN - - - MR. F. J. STEWARD.

The following is the first list of acceptances:—

1863—1889

1863 Carter, Thomas.
1879 Hale-White, Sir Wm., K.B.E.
1879 Howell, T. A. I., J.P.
1887 Holloway, S. F.
1888 Mitchell, Thomas E.
1889 Black, G.

1890—1899

1890 Fawcett, John.
1891 Hopson, Montagu F.
1893 Eyre, John Wm. Henry.
Graham-Little, Sir E., M.P.
1896 Spicer, Arthur H.
1897 Marsh, H. R.
1897 Way, Montague, J.P.
1898 Alexander, K. B.
Eason, Herbert L., C.B.
Ormond, Arthur W., C.B.E.
1898 Swan, R. H. Jocelyn.
Wernet, A. J.
1899 Payne, J. Lewin.
Ruzzak, S. A.

1900—1909

1900 Clarke, Edward.
Goble, E. W.
1902 Griffin, Ernest H.
1904 Hughes, E. C.
Hurst, A. F.
Mollison, W. M.
1905 McBride, John.
Palmer, F. W. Morton.
1906 Bankart, A. H. Blundell.
Cameron, H. Charles.
Johnston, T. B.
1906 Stebbing, George F.
Trethowan, W. H.
1907 Densham, Arnold.
1908 Kolapore, Lt.-Col. F. J.
1909 Mitchell, Douglas A.

1910—1919

1910 Bromley, L.
Elliott, E. L.
Gardiner, H.
Marshall, Geoffrey.
Mullaly, G. T.
1911 Cook, Frank.
Mutch, N.
Parmiter, B. R.
1912 Andrews, George E. Genge.
Hoby, Harry J.
1912 Jepson, A. C.
Reynell, W. R.
1913 Mather, Horace.
Ryle, John A.
Tanner, W. E.
Watkins, Philip J.
1914 Scott, P. D.
1915 Symonds, C. P.
1916 Braine, J. F. Carter.
1916 Jones, James Gaymer.
Wacher, H. Stewart.
1917 Conybeare, J. J.
Howe, J. C. C.
1918 Hawes, Walter Aubrey.
Long, Harold O.
Millett, Harry.
Spencer-Payne, A. Ll.
1919 Dowling, G. B.

1920—1929

1921 Laver, Basil L.
Shaw, Maurice.
1922 Jones, T. Evans.
Richards, E. H.
Stoker, G. M.
1923 Hubbs, Donald H.
1923 Powell, A. T. W.
1924 Powley, F. St. John.
1925 Blacker, C. P.
Grove, W. S.
Hawkins, B. E.
Jago, E. M.
1925 Strong, S. V.
1926 Pye-Smith, E. J.
Trick, S. R.
Witts, L. J.
1928 Scorer, S. A.
1929 O'Donoghue, R.

1930—

1930 Ive, O.
1930 Plummer, N. S.

bility of occupying the place of trusted friend and counsellor to our patients in times of trouble and of health.

Then, too, there are the services of the State; for example, the Indian Medical Service, one of fine traditions, affording unlimited opportunities in every branch of our work, medical, surgical or special, and equally indispensable with the great Civil Service of India, even more so indeed in these times than in those past, if the welfare and prosperity of that great continent is to stand secure.

And so I might continue to run up and down the gamut of the whole series of general and special branches of our work, whether concerned with the practice of the art of Medicine, or with its scientific and so-called research sides, its opportunities for teaching, for administration, and in many other directions.

It might be thought that here was the appropriate place in which to offer to you what the late Dr. Moxon called "Advice Gratis," but, happily for those who may read these desultory remarks, I remember that each one of us has in the main to gather experience for himself; also that there is no greater fallacy than to imagine because one is getting older that, therefore, one is getting wiser. Indeed, there is something to be said for Disraeli's view that so long as one has imagination experience is but a back-number, or words to that effect. In any case, to rely too much on the experience and teaching of older people may result in failure to recognise truth when it appears or the need for change, and so in the acceptance of opinions or methods of treatment long after their value is discredited.

"The profit of the game itself, that which makes it worth playing at all, even to those who succeed best, this they (your teachers) can neither refuse nor grant; you bear it in yourselves inalienably, whether you succeed or fail."—*Brewster*, "The Prison.")

But if I do not offer you advice from my own experience at least I am not debarred from drawing your attention to a source which has been to me one of unending pleasure and profit. I refer to the collection of charming and wise addresses by the late Sir William Osler to students, to nurses, and to doctors, bound together in a volume entitled "Æquanimitas." There is no book in which, to my mind, the prospect, the ideals, the rewards, and the difficulties of our professional work are more broadly and sympathetically scrutinised, full as the book is throughout of wisdom and help to doctors in all places and of all ages.

There are many of us who recognise with gratitude and obligation a special bond of friendship between Osler and Guy's, for when we think of our own great ones of the past, of Astley Cooper, Babington, Bright, Addison, Wilks, and others, we may recall that Sir William Osler, when addressing the members of the Physical Society in 1905, did us the honour of professing himself a Guy's man, at least by adoption, he having sat at the feet of Guy's physicians and there imbibed the traditions of our school. Before long I hope there may be many of you who will borrow "Æquanimitas" from the library, and, having read it, buy a copy for yourselves.

How true it is, as Professor Osler writes in his first address on "Equanimity," that the acquirement of a certain measure of imperturbability, not hardness, a calm attitude towards the affairs of our professional life, is one at which it is desirable, nay, necessary, to aim, difficult though it may be for some of us to reach. Capacity to compass this control will help us so often when in a tight corner to turn aside "the slings and arrows of outrageous fortune," to keep our heads in an emergency when the lives of men and women depend upon our decisions, and to meet those responsibilities which are bound to come our way, and of which every keen man must hope to have his share. For, after all, responsibility is the salt of life, and to run way from it, to be unprepared to take risks justified in our considered judgment, can but leave us one of a herd, a dull, uninspiring and uninteresting crowd.

And then another asset comes to mind, that of tolerance, a wide-hearted generosity for the opinions of other people. We all know the man in our profession, as elsewhere, who is for ever grumbling at his lot, for ever criticising and never constructing, and we can but liken him to one of the plagues of Egypt, a destroying influence and a pestilence in the land. "Knowledge comes, but wisdom lingers," and the crank or the ever-destructive critic, though he may have knowledge, knows little wisdom, and still less of that spirit of unity, peace and concord so essential for the complete development of our work and for the comfort of our members if we are all to try and pull together in these, or any, days, and to carry on our work in a favourable atmosphere.

It is unnecessary for me to refer further to Sir William Osler's writings; you must read them

for yourselves, and I do not believe you will regret it. Nor is it needful for me to eulogise the profession in life which you have already chosen. As students, the longer you are here the more you will appreciate, as others have before you, what the foundation of Thomas Guy provides. You will look forward to the time when you reach the wards and come to actual grips with the practice of Medicine; then you will see Guy's not only by day but in a new world by night, and in a way which you have never done before you will learn to know your fellow-men of all sorts and sizes, than which I know no better prospect nor anything better to look back upon in the days to come. Of course, in order to obtain a full measure of enjoyment from life's task you must work hard, and not only so, but plan out your work well from the start, and employ sound methods, for no jerry-building will serve in these days. "A man may be young in years, but old in hours if he have lost no time," and to keep young he perforce requires, besides work, a due measure of relaxation which is fully recognised here in the ample opportunities which exist in connection with the activities of the various constituent clubs and societies of the Clubs' Union, as well as elsewhere. May I add one word of warning to those who may be disproportionately attracted by the accessories of modern-day medicine and surgery? There is no short cut to good diagnosis, and students, nay, even qualified practitioners, may be, and are, tempted to place unjustified reliance on radiograms, test-meals, and the like, which, invaluable and necessary as such auxiliaries are in their proper surroundings, must not be abused. They should never be employed to save ourselves trouble, with resultant neglect of the well-tried routine methods of clinical work. That way leads to slipshod, careless and unreliable diagnosis, sometimes causes needless expense to our patients, and may bring calamity upon a hitherto sound reputation. Here is Sir William Osler's wise saying in reference to such or allied matters: "We are apt amidst our learning and our scientific observations to forget that the ear, the eye and the hand are, after all, the chief avenues of knowledge, and to neglect their finer education in our eagerness to learn the mysteries of all "scopes" and our reagents. We need the Experientia as well as the Experimenta."

And now it is time for me to end, and in doing so to add that I see "the sun still on the wall" of Guy's to welcome and shine on you, as it has done on many generations of men in the last 200 years.

I cannot do better in conclusion than follow the example of one of our great and honoured men of the past, Sir Samuel Wilks, who, as Honorary President of the Physical Society, in a farewell letter to the members in 1908, quoted from an address by William Allen, the first, he says, ever delivered to Guy's men. You can read the letter in the *Guy's Hospital Gazette* for October 17, 1908, the address being given, Sir Samuel Wilks states, about the year in which he was born, viz., 1824. It may possibly have been given, I take it, a year or so later, perhaps when "King" Harrison, the Treasurer, opened a medical school of his own in 1825, and so determined our former status of a joint school with St. Thomas's. The paragraph is written in the ornate and eloquent type of English common a hundred years ago, but it will none the less be appreciated by you on that account; it is as follows:—

"Your profession is a liberal one, and it is expected that your conduct shall do honour to that profession. It is not enough that you merely bring to it that knowledge which is essential to the cure of diseases. Suffering humanity requires something more; it desires sensibility of heart and those exalted feelings which distinguish the good and worthy man. These qualifications are necessary to the complete character of a medical man; they will not only be acceptable in the sight of God, but, being congenial with every noble sentiment of the heart, will powerfully contribute to advance even your temporal interest, and enable you to make your way in the world."

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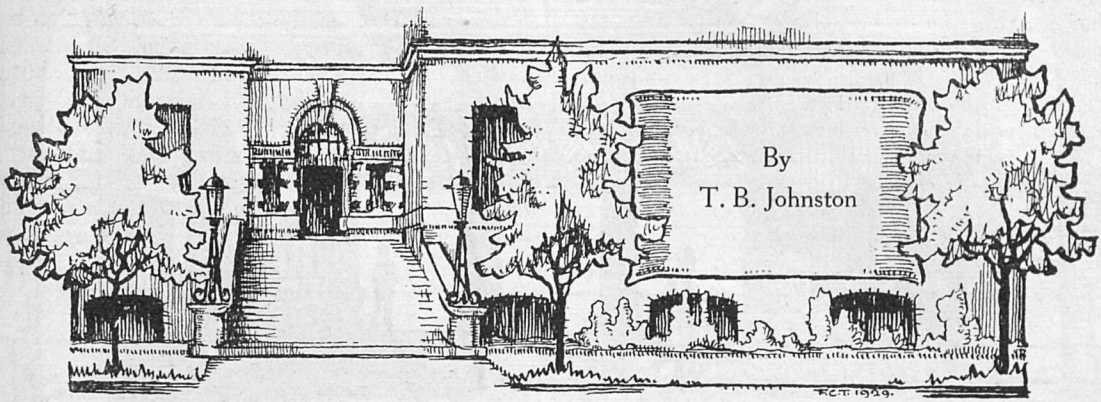
To Those Undertaking the Pre-Clinical Sciences



By
T. B. Johnston

THE subjects of Biology, Chemistry, Physics, Anatomy, Physiology and Pharmacology, which are all included under the title of the Pre-Clinical Sciences, have two distinct, though not unrelated, parts to play in the education of the medical student. By their study he acquires, in the first place, a knowledge of certain basic facts and fundamental principles which form the starting point for the study of medicine in all its branches, and, in the second place, an appreciation of the meaning and value of scientific methods.

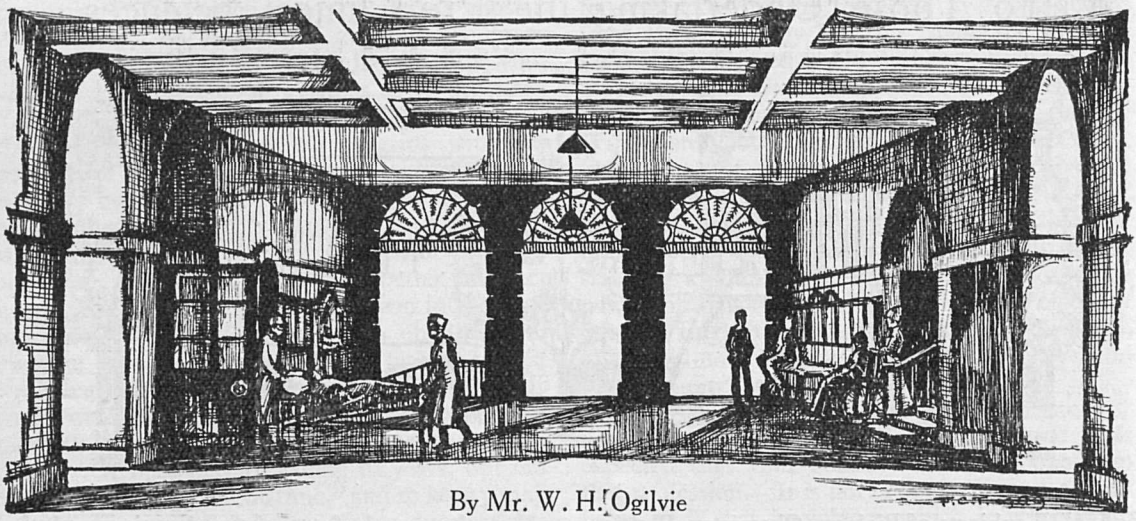
It is scarcely necessary to point out that unless a student is familiar, for example, with the part played by the stomach in the normal process of digestion, he cannot be expected to approach a case of disordered gastric function with any degree of intelligent appreciation. Ignorance of the elementary facts of the structure of the skeleton will preclude him from deriving any useful knowledge from the examination of a patient suffering from a fracture of the humerus. It is unnecessary to multiply examples to show how essential it is for the student to acquire a knowledge of Anatomy and Physiology before he comes to grips with Medicine proper. In a similar way it could be shown that a knowledge of the chemical, physical and biological bases of life processes and body structure is an essential preliminary to the study of Anatomy, Physiology and Pharmacology.

From the intensely practical point of view these pre-clinical sciences have an obvious utilitarian value, but by inculcating a knowledge of scientific methods and an appreciation of their importance they exercise an even greater influence. Scientific method entails the accurate observation of phenomena, the search for their explanation and the confirmation of the explanation, wherever practicable, by experiments, carefully designed and accurately performed. In the various departmental laboratories the student will be given numerous opportunities for using and training his powers of observation; his lecturers or his textbooks will provide him with the explanations and will suggest experiments which may be carried out to test their truth. It should be remembered, however, that for many students the technical manipulations of the experiment are a source of interest and attraction, and care must be taken not to lose sight of the object of the experiment.

The intelligent student must regard both the printed and the spoken word with an open mind. He must accept neither until he has submitted them to his own judgment, and where he can test their accuracy by observation he must do so. He must aim at knowing and understanding the subject before him. Understanding is the best aid to memory, and facts which have to be memorised can be assimilated best if their meaning and their interrelationships with other facts are properly understood.

Despite the amount of work which has got to be completed, there is ample time and opportunity for recreation, both bodily and mental. Every man who is not debarred by physical disability should take up one winter and one summer game, for nobody can do good work unless he is thoroughly fit. In the pre-clinical period the work is necessarily of a sedentary character, and regular exercise is, therefore, all the more important.

To Those Entering the Surgical Wards



By Mr. W. H. Ogilvie

GUY'S HOSPITAL rightly enjoys a world-wide reputation as a medical school, which for generations has sent into all parts of the world doctors armed with practical knowledge and with the willingness and ability to take responsibility which a practical training implies. There are two special advantages of the teaching here—the great wealth of material which passes through the wards and Out-Patients' Department, and the responsibility which is given to every man from the very outset of his career. In each appointment he is not taught only, he is asked to carry out essential work for the Hospital and for his patients, and trusted to carry it out well. At the beginning and close of the clinical period stand two appointments which are peculiar to Guy's, Surgical Ward Clerk and Clinical, and both of them have this combination of responsibility and instruction.

It is on the surgical side of the Hospital that you who are now entering the wards will first encounter the practical side of the profession you have adopted as your life's work, and the human material with which that work is to be carried out. It is as well that it should be so, for here the issues are clearer. Later will come the study of prolonged and progressive disease, of those degenerations which follow upon misspent lives or have causes still unknown, of failures rich in scientific interest, but at present beyond your power to remedy. You will meet much that is depressing. But during your first three months in a surgical ward you will find yourself in one of the most cheerful places in the world, where hope is the keynote, and hard, active, useful work your daily occupation.

For you who have chosen aright, this time will stand out with ineffaceable clearness for the rest of your lives. What has gone before has not been without interest, but the interest was academic. It was like the long drilling on Salisbury Plain, which made the raw recruits into the material of Kitchener's Army. The crossing of the Channel took them from make-believe to real war, the actuality for which all the drill had been a preparation. The rehearsal was over, the curtain was up. And so, in a surgical appointment, you are suddenly in the midst of real life. You are confronted with accidents, sudden infections, grave calamities. In the main it may be said of the patients whom you will encounter, that they are healthy, normal, sane individuals, struck without warning by some sudden misfortune. You are present at this crisis in their lives, and it is in your power to help in fighting it. There is something to be done; and when it is done it is your privilege to see the rewards of victory—the quick recovery and the return of hope.

There is another advantage of starting your career on the surgical side. You are introduced to disease in a comparatively simple form, and the knowledge of anatomy and physiology which is fresh in your mind enables you to grasp very much of what you encounter without the need of lectures or text-books. Very much of surgery deals with local disease, that is to say, there is one faulty structure in an otherwise healthy body. Given a thorough knowledge of anatomy and

GUY'S HOSPITAL MEDICAL SCHOOL

TIME TABLE. WINTER TERM, 1931.

SUBJECTS FOR FINAL EXAMINATION. MEDICAL.

Subject	Lecturer	Days and Times	Place	First Class or Lecture
Applied Anatomy	Professor Johnston	Wednesdays at 12 noon	Demonst'n Theatre	Wednesday, October 7
Forensic Medicine	Dr. Ryffel	Fridays at 4.30 p.m.	Class Room 3	Friday, October 9
General Pathology	Professor Donaldson	Lectures—Tues., Thurs. and Fridays at 12 noon Practical—Daily at 9 a.m.	Pathol'cal Theatre Path'cal Class Room	Friday, October 16 Monday, October 19
Medical Pathology	Dr. Campbell	Tues. and Weds. at 9.30 a.m.	Museum	Tuesday, October 6
Surgical Pathology	Mr. Davies-Colley	Mon. and Thurs. at 4.45 p.m.	Museum	Monday, October 12
Operative Surgery	Mr. Hughes	To be announced later	Op. Surg Class Rm.	To be announced later
Ophthalmology	Mr. Morgan	Thursdays at 4 p.m.	Anatomical Theatre	Thursday, October 8
Radiology	Dr. Lindsay Locke	Tuesdays at 4 p.m.	Anatomical Theatre	Tuesday, October 13

ORGANIC CHEMISTRY, ANATOMY, PHYSIOLOGY, AND PHARMACOLOGY.

Subject	Days and Times	Place	First Class or Lecture
Organic Chemistry (2nd M.B., Part I)	Lectures—Mons. 1.45, Weds. 12 noon Pract.–Mons. 2.45–5. Thurs. 10-1 p.m.	Chemistry Theatre Chemistry Laboratory	Lectures—Monday, October 5 Practical—Thursday, October 1
Anatomy	Elementary Lectures— Weds. 11 a.m. Friday 9.30 a.m. Senior Lectures (Neurology)— Tues. and Thurs. at 9.30 a.m. Revision Classes— To be announced later Demonstrations— To be announced later Practical Anatomy— Daily from 9.30 a.m. to 5 p.m. Primary F.R.C.S.— To be announced later Normal Histology Tues. at 2 p.m.	Anatomical Theatre Anatomical Theatre Demonstration Theatre Demonstration Theatre Dissecting Room Demonstration Theatre Histology Laboratory	Friday, October 2 Thursday, October 1 To be announced later To be announced later Tuesday, September 29 at 10a.m. Monday, September 28 at 2 p.m. Tuesday, October 6
Physiology	Elem. Expt. (All Junior Students)— Fri., 11–1 p.m. Sat., 10–12 noon Adv. Chem. (Senior M.B. Students)— Mons. and Weds., 11–1 p.m. Clinical Physiology (All Students)— Thurs., 12–1 p.m. Tutorial Classes— Elementary— (Junior Medical Students) Advanced— (All Senior Medical Students)	Experimental Physiological Laboratory Chemical Physiological Laboratory Clinical Theatre To be arranged	Friday, October 9 Monday, October 5 Thursday, October 8
Pharmacology	Mons. 4 p.m. Fri. 1.15 p.m.	Physiological Theatre	Monday. October 5

CHEMISTRY, PHYSICS AND BIOLOGY.

Course	Subject	Lectures	Place	Practical Classes	Place
Pre-Medical Conjoint	Inorganic Chemistry	Tues. & Thurs. 9.30 a.m. First Lecture, Tues., Oct. 6, at 9.30 a.m.	Chemistry Theatre	Fri. 10–1 p.m. Thurs. 2–5 p.m. First Class, Thurs., Oct. 1, at 2 p.m.	Chemistry Laboratory
	*Elementary Organic Chemistry	Thurs. 2–3 p.m. & Fri. 12–1 p.m. First Lecture, Thurs., Oct. 8, at 2 p.m.	Chemistry Theatre		
	Physics	Tues. & Thurs. 10.50 a.m. and Tues. at 12 noon. First Lecture, Tues., Oct. 6, at 10.50 a.m.	Class Room IV	Mons. 10–1 p.m. and 2–5 p.m. First Class, Mon., Oct. 5	Physics Laboratory
Conjoint	Biology	Weds. 9.30 a.m., Thurs. 12 noon, Fri. at 9.30a.m. First Lecture Thurs., Oct. 1, at 12 noon.	Physiological Theatre	Tues. 2–4 p.m. & Fri. 3–5 p.m. First Class, Fri., Oct. 2, at 2 p.m.	Biology Laboratory
M.B. London	Chemistry	Tues. & Thurs. 9.30 a.m. First Lecture, Tues., Oct. 6, at 9.30 a.m.	Chemistry Theatre	Mons. 10–1 p.m., Tues. 2–5 p.m. First Class, Mon., Oct. 5, at 10 a.m.	Chemistry Laboratory
	Physics	Tues. & Thurs. 10.50 a.m., and Tues. at 12 noon. First Lecture, Tues., Oct. 6, at 10.50 a.m.	Class Room IV	Thurs. and Fridays 2–5 p.m. First Class, Thurs. Oct. 8, at 2 p.m	Physics Laboratory
	Biology	Weds. 9.30a.m., Thurs. 12 noon, Fri., 9.30 a.m. First Lecture, Thurs., Oct. 1, at 12 noon.	Physiological Theatre	Weds. & Fridays 10.30–1 p.m. & Sats. 11–1 p.m. First Class, Fri., Oct. 2, at 10.30 a.m.	Biology Laboratory

* Only for those Students taking the Pre-Medical Examination in January, 1932.

GUY'S HOSPITAL DENTAL SCHOOL

TIME TABLE—WINTER TERM, 1931

Subject	Lectures	Place	Practical	Place
INORGANIC CHEMISTRY	Tuesdays and Thursdays at 9.30 a.m., commencing on Tuesday, October 6th	Chemistry Theatre	Thursdays at 2 to 5 p.m., and Fridays 10 a.m. to 1 p.m., commencing on Thursday, October 1st at 2 p.m.	Chemistry Laboratory
ELEMENTARY †ORGANIC CHEMISTRY	Thursdays at 2 p.m. and Fridays at 12 noon, commencing on Thursday, Oct. 8th.	Chemistry Theatre		
PHYSICS	Tuesdays and Thursdays at 10.50 a.m.,and Tuesdays at 12 noon, commencing on Tuesday, October 6th	Class Room IV	Mondays from 10 a.m. to 1 p.m., and from 2 to 5 p.m. commencing on Monday, October 5th	Physics Laboratory
BIOLOGY	Wednesdays 9.30 a.m., Thursdays at 12 noon, and Fridays at 9.30 a.m., commencing on Thursday, October 1st.	Physiological Theatre	Tuesdays 2 to 5 p.m., and Fridays 3 to 5 p.m., commencing on Friday, October 2nd .	Biology Laboratory
DENTAL METALLURGY ..	Mondays and Wednesdays at 10 a.m., commencing on Monday, October 5th	Chemistry Theatre	Thursdays at 2 p.m., commencing on October 8th	Metallurgical Laboratory
DENTAL PROSTHETICS	Mondays at 4.0 p.m., commencing on Monday, October 5th at 4 p.m.	Anatomical Theatre	Fridays at 1.45 p.m., commencing on October 2nd	1st and 2nd Years' Laboratory
ANATOMY	(1) *Junior Lectures*— Wednesdays at 11 a.m., and Fridays at 9.30 a.m., commencing on Friday, October 2nd (2) *Demonstrations*— *(*a*) Bones— To be arranged later. *(*b*) Soft Parts— To be arranged later.	Anatomical Theatre Anatomy Demonstration Theatre Anatomy Demonstration Theatre	Daily from 9 a.m. to 5 p.m., commencing on Tuesday September 29th Dental Students who have completed one term's work in the Department must enter their names for "parts" in the Dissecting Room.	Dissecting Room
PHYSIOLOGY	Thursdays 10.30 a.m., commencing on Thursday, October 8th	Physiological Theatre	Thursdays at 11 a.m., commencing on October 8th	Experimental Physiology Laboratory
HISTOLOGY	Thursdays at 2 p.m., commencing on October 8th.	Histology Laboratory		
PATHOLOGY	Wednesdays 11 a.m. commencing on October 7th	Pathological Theatre	Tuesdays at 3 p.m. commencing on October 13th.	Pathological Class Room
DENTAL ANATOMY ..	Fridays at 12.15 p.m., commencing on October 9th	Physiological Theatre		
DENTAL HISTOLOGY	Mondays at 2 p.m., commencing on October 5th	Pathological Theatre	Mondays at 2.30 p.m., commencing on October 5th	Pathological Class Room
GENERAL SURGERY	Tuesdays at 1.15 p.m. Thursdays at 3 p.m. Fridays at 1.15 p.m. Commencing on Tuesday, October 6th	Class Room IV Class Room IV Clinical Theatre		
DENTAL SURGERY ..	Tuesdays at 4.15 p.m., commencing October 6th	Physiological Theatre		

* N.B.—New Regulation L.D.S. Students in their Second Term of Human Anatomy must attend (*a*), and may attend (*b*) if they so desire.
Old Regulation L.D.S. Students and New Regulation Students in their Third Term of Human Anatomy must attend both (*a*) and (*b*).

† Only for Students taking the Pre-Medical Examination in January 1932.

pathology the teachings of surgery become self evident. Surgical diagnosis is little more than the answering of two questions—what is the anatomical structure involved and what are the pathological processes that have caused the trouble? A man has thrust his arm through a window and a piece of glass has penetrated the forearm. The first question that faces you, "What structures would be encountered from without inwards if an incision were made in such a situation?" is one that you might reasonably be expected to answer in an anatomical paper. The second question, "Which of these structures has actually been divided?" means an investigation of the sensation of the different nerves, and the movements carried out by the muscles and tendons which lie in the path of the injury, and a search for pulsation in the arteries distal to the wound. The treatment is an exercise in anatomy and craftsmanship, very interesting, because the relations which have been memorised by force of will are now brought vividly before you under the bright light of the operating lamp. Your hardly-acquired knowledge makes you not only a sympathetic fellow-man, but one skilled to restore function and promise recovery to the patient.

During these three months you will work very hard, probably harder than you have ever done before, but it is all tremendous fun. Your primary duty to the Hospital is to keep a record of the cases under your care. This you will do as well as possible, both for your own sake and because on the accuracy and lucidity of your account will depend the value of the record in years to come should the same patient be readmitted or should a series of similar cases be investigated for statistical purposes. Besides clerking, however, you will be expected to help in every activity of the firm to which you are attached, from carrying patients to making tea in the dressers' room during "take-in." This appointment is your great opportunity for making yourself proficient. You should familiarise yourself with the somewhat elaborate routine of modern asepsis. You should take every opportunity to watch the dresser looking after your cases, for in the next appointment you will be a dresser yourself, and will be expected to know your work. It is the privilege of the beginner to ask questions, and this you should do in season and out of season. All knowledge which you acquire will stand you in good stead as a dresser, and as a dresser you will have more work to do yourself and less opportunity to learn by watching that of others.

You will go to bed very tired, and you will find little time to read. Do not therefore make any attempt to work through a surgical text-book, but read up your own cases carefully. True surgical knowledge is part of your own self, and is based upon a memory of individual cases followed through and committed to memory. To be thus remembered each case must be a clear-cut picture; therefore begin at once to form the habit of definite decision. At this stage it is far better to be certain than to be right. To begin with, you will have but little knowledge, but with what knowledge you have examine each case, make a definite diagnosis, and decide what treatment you would adopt. Whether the outcome proves you right or wrong, you will remember it, and you will have learned something in the process. But if you allow yourself alternatives you may be tempted to the complacent reflection that one of them at least was right. Any man who could remember all his mistakes would be the wisest surgeon in England at the age of 60.

Be interested in everything in your patients and your fellows; no less in the nursing which completes the cure than in the operation which initiates it. It is an old saying that the wise doctor treats the patient as well as the disease. Enter into human relationships with your patients. They will call you doctor and will hang upon your words, and there is much you can do to make them well besides ministering to their surgical wants. In this side of your work alone you will learn much that will help you to success in after life. At Guy's we are particularly fortunate in our patients. There is no foreign quarter in the Borough, no shifting population. British dockers, navvies, carters, factory hands and their wives and children, come into our wards to be made well. They are fine people and proud of living round the best hospital in England. Their happiness and our good name are in your hands.

Medical School Notice

GULL STUDENTSHIP

Applications are invited for the Gull Studentship in Pathology and Allied Subjects.

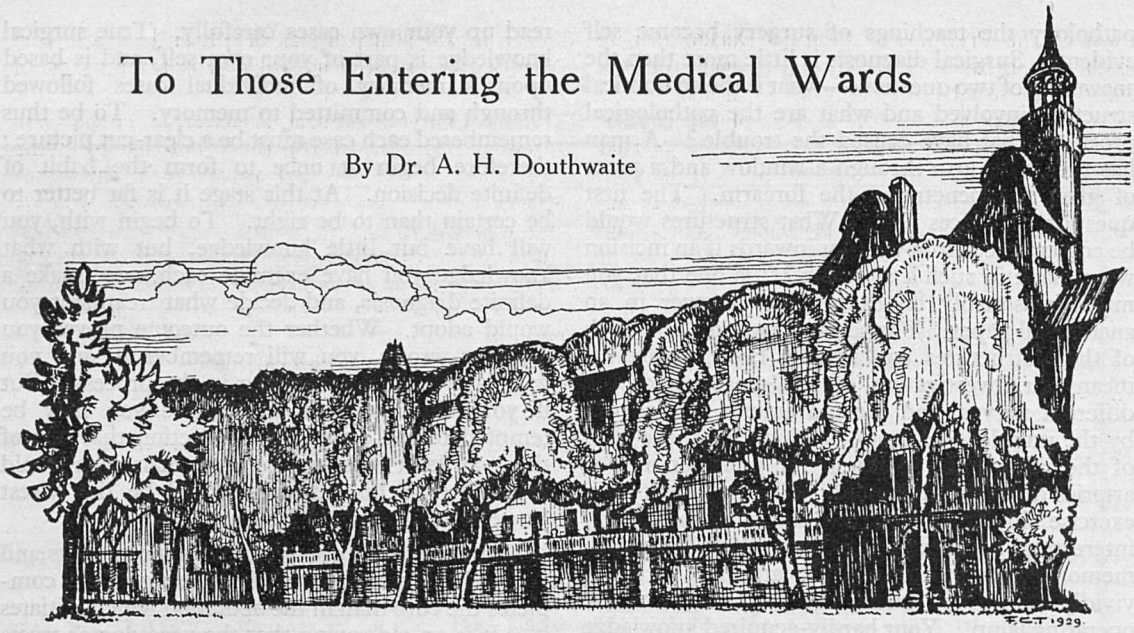
The Studentship is open to candidates under 35 years of age who have studied in the Medical School of Guy's Hospital, is of the annual value of £250, and is tenable for three years.

Further particulars may be obtained from The Dean, Guy's Hospital Medical School, London Bridge, S.E.1, to whom applications should be addressed not later than Monday, October 5th.

T. B. JOHNSTON,
Dean.

To Those Entering the Medical Wards

By Dr. A. H. Douthwaite



PARTICULARLY to those of you who come to us from other medical schools, the absence from Guy's of the formality, of the scholastic atmosphere, peculiar to so many hospitals will be very striking. No attempt is made to control your studies as by a schoolmaster. A high degree of freedom is allowed you in the knowledge that every opportunity and help is also offered to those who want to work. You are credited with the intelligence necessary to learn from textbooks, and, therefore, we do not give set courses of instruction by lecture in medicine. The aim at Guy's is to keep as much time free as possible for students to gain practical experience in the wards in order that they shall develop into self-reliant and efficient doctors. The wide capabilities of a Guy's man are recognised by the medical profession all over the world, and are directly attributable to the absence of " spoon-feeding " at this hospital.

It is not my purpose to preach to you of the necessity of hard work and devotion to Guy's. Presumably the majority of you have taken up medicine by inclination, in which case a few days of work amongst sick people will heighten your enthusiasm and provide you with such absorbing studies that no urge will be required.

To the few who are constitutionally tired, again advice will not be offered. No man has ever worked the harder in obedience to exhortation. It may even appear to you that you can drift through your life at Guy's with the minimum of effort. This is to an extent true, but these things are noticed, and have been known to lead to a pressing invitation to transfer allegiance to another hospital.

The abandonment of relatively exact sciences dealing with controllable substances and reactions for a life in the medical wards full of materials which, though superficially uniform in nature, actually differ completely by virtue of the unaccountable processes of human minds, not infrequently produces confusion combined with a fear that the earlier studies can be of little practical help. It is, however, precisely this human element which renders clinical medicine at once so fascinating and yet so difficult, for diagnosis usually rests mainly upon symptomatology, and to a less extent upon physical signs. Symptoms, however, have no fixed standard by which their severity can be assessed; their description is inevitably coloured by the personality of the patient.

The natural tendency to proceed to the examination of a patient without taking a careful history is, therefore, strenuously to be avoided. One should rather devote the greater part of one's time to listening to his story, and then, by careful questioning, sift the relevant from the irrelevant. In so doing, the true nature of the disease commonly reveals itself before ever a finger has been laid on the sufferer.

As a matter of course, a very careful physical overhaul should follow; nothing must be left to chance, which rarely favours its disciples. Nearly all diagnostic mistakes are referable to shoddy history-taking, or incomplete examination. It was a recognition of this fact which lead to the insti-

tution of the Preliminary Clinical Period during which appointment you will have every opportunity of thorough grounding in essentials.

Probably the most valuable time of the day for the acquirement of practical knowledge is that which follows the afternoon round. It is then that the house physician performs lumbar punctures, collection of blood, tapping the chest and so forth. Naturally every opportunity should be seized of watching these procedures, which will, no doubt, be given to you to carry out from time to time. It is now, also, that special signs referred to in the teaching rounds can be re-examined, and thus fixed in the memory. Every evening, for a month at least, one pair of optic discs should be searched for with the ophthalmoscope. Once the knack has been acquired, and this usually comes quite suddenly after several days of disappointment, it will never be lost. It takes much longer, however, to obtain a clear mental picture of the normal as opposed to the diseased disc, and yet recognition of early change may be decisive in clinching a diagnosis, and possibly even in saving a life. It is for this reason that the daily study of retinæ should be made a fetish.

In addition to your work in the wards, you should attend post-mortem demonstrations whenever possible, and attempt constantly to correlate the morbid findings with the reported clinical signs. Nowhere are the many pitfalls which beset the path of the diagnostician so lucidly revealed as in the post-mortem room, where errors are ruthlessly exposed. In years to come you also will experience the epigastric discomfort which assails us on approaching the exposed remains of a case whose malady during life had seemed so simple of explanation.

As to reading, this should be limited to descriptions of any disease which you may have witnessed on that day in the wards, whilst the rest of the evening should be devoted to pathology. A thorough grounding in this subject greatly simplifies the study of sick people and, by allowing of inductive reasoning, robs symptomatology of many of its difficulties.

Do not let your natural, or acquired, enthusiasm for work beguile you into the belief that by living near the hospital you will absorb from the atmosphere a little extra learning. Far from it, you are much more likely to become a prey to disease induced by ill-ventilated, dark and dirty rooms. Eventually it may be necessary for you to take up residence at Guy's; but that will be quite soon enough.

Whereas in pre-clinical years holidays are unnecessarily long, those which can be taken subsequently without the loss of invaluable experience are very scanty. Three weeks a year is the minimum which should be taken, and this must be supplemented by frequent week-ends spent away from town and books.

It is equally important to keep a watchful eye on your mental well-being lest frequent contact with those of similar pursuits lead you into the deplorable condition of having no interest outside that of medicine. To avoid this try to live in diggings with a man in some other faculty, and never go on holiday with a fellow medical student, no matter how desirable a companion he may be.

Seize all opportunities of speaking in public. The Physical Society is an excellent starting point for the practice of an art which is difficult to most of us, but of the utmost value to all.

As a last word, I would draw your attention to the fact that at Guy's quite exceptional reliance will be placed upon you from the moment you take up the duties of ward clerk. Certain examinations are left entirely to you. The case reports are essentially your province. Failure to carry out the duties conscientiously may not only "let down" your house-physician and corresponding member of the visiting staff, but, also, even endanger the lives of patients for whom you share responsibility.

To Those Entering the Nursing Profession

NEVER at any time in the history of our country has there been a greater need for hard, unselfish work from every member of the community, and it is work of this character which is to be undertaken by those of you who have entered Guy's recently for your training as nurses. The material rewards may be few, and the training is arduous and exacting; the whole profession is in a state of transition. All the more credit, then, is due to those of you who have seriously made up your minds that this is the work above all other work that you want to do, whatever may be the difficulties in the doing of it.

The "sense of vocation" with which we hope you have come, or which you will soon develop, is the saving of the profession, and brings the best type of candidates to it. From its very nature nursing cannot compete with other professions as regards its hours and demands upon the worker. But those who are in it can surely tell you that it has its variety, interests and satisfactions second to none. It can safely be stated that, whilst in

training at Guy's, you may be overworked, angry, anxious or thrilled, but you will never be *bored*.

The Borough patients in this corner of South London are waiting for you to do your bit at Guy's —to share their troubles and joys. Guy's nurses have a tradition amongst them and are regarded as their friends. Go into the wards determined to carry on that tradition. Give all you have of yourself and learn to develop more *in* yourself so that you have more to give. Keep in good health by going out when you are off duty, and keep yourself fresh by not losing your outside interests. Study the theory of nursing as much as you can from your practical work in the wards, so that your lectures and classes are less burdensome and more real to you. Above all, keep your sense of humour. Good luck, and may this be for you the beginning of a satisfying and absorbing career.

The Medical Curriculum

1. The Sciences

THE matriculated student will, in his first year, study Inorganic and Physical Chemistry, Physics and General Biology, and at the end of this period, provided he has worked diligently in the laboratories, and attended the Lectures and Revision classes regularly, should have no difficulty in passing the First Examination for Medical Degrees. In his second year he will study Organic Chemistry, together with Anatomy and Physiology, and at the end of the second winter, provided, as before, that he has worked steadily from the commencement, should have little difficulty in passing the First Part of the Second Examination for Medical Degrees. Anatomy, Physiology and Pharmacology are then taken as the Second Part of this Examination at the close of the third winter, prior to commencing Clinical work in the wards.

From Medical and Dental students who are preparing for the Pre-Medical Examination only six months' work is required, but those entering without previous knowledge of Chemistry and Physics will find that time hardly sufficient, and are usually advised to take the full "year" of three terms, or nine months.

The importance of practical work cannot be too greatly emphasised, and lectures and books can but supplement work done in the laboratory. Guy's men have no excuse for neglecting laboratory work. Students are strongly urged to form early the habit of spending their spare hours, apart from those officially allotted, in one or other of the laboratories. Reading should be left for the evening. After a day in the laboratory, reading a good text-book will be found to give ample scope for thought. "Cramming," or the memorising of words and phrases, without a knowledge of the corresponding realities, is one of the worst intellectual habits a student can acquire, and in the long run invariably leads to failure.

CHEMISTRY AND PHYSICS

The student is often tempted to regard the study of Chemistry and Physics as one of very little use when once his preliminary examination is passed, but he will find in his study of the sciences of Physiology, Pharmacology and Pathology that a proper understanding of Physical and Organic Chemistry and Physics is invaluable and essential. That this is so is now fully recognised in the London University curriculum, which should be carefully studied by every London student.

BIOLOGY

Biology, like all the sciences, is properly studied in the laboratory, because things seen are better understood and remembered than things read or heard. Animals and plants are the true sources of a knowledge of biology, and more correct than the text-books written about them. Acquire, therefore, the laboratory habit and record carefully what you observe. Use your books as reminders of the things seen. Draw much. It saves you from the habit of verbal memorising. The drawing of a diagram is the best way of testing the accuracy of one's knowledge in a descriptive science like biology. In the laboratory are also demonstrators whose duty it is to clear up your difficulties. Equip yourself with the necessary instruments. A microscope is needed at once. Its purchase requires care and advice. Students have been known to saddle themselves with an instrument that gives them unsatisfactory results for a whole year, and gets condemned in a later microscopical course. This is poor economy, as the difference in price between a good and poor microscope is small. If you are buying a secondhand instrument, bring it to the laboratory for examination by the demonstrators before you complete the purchase.

ANATOMY

Too much emphasis cannot be laid on the importance of the careful dissection of the human body as an aid to the student in learning the subject of Human Anatomy. The man who has not dissected the whole body with average care can never hope to acquire familiarity with the subject, and experience shows that the man who neglects or "scamps" his dissections—and incidentally endeavours to make up the lost ground by dint of hard reading—has infinitely more difficulty in satisfying the examiners than the man who has completed his dissections conscientiously, even though he may have given much less time to his reading than he might have done. This is, it is true, the sordid examination point of view, but it is, nevertheless, not to be lost to sight.

It is unfortunate that limitations of time and other cogent reasons demand that the student should commence his dissections at the same time as he receives the introductory lectures on anatomy, an arrangement which increases his initial difficulties in the dissecting room. At the very outset he will find himself faced with a mass of facts in which there seems to be neither rhyme nor reason. After a little, however, the fog by which he has been enveloped will begin to lift, and, gradually, he will come to appreciate that what at first appeared to be a chaotic collection of structures, endowed with unintelligible and apparently meaningless names, resolves itself into a reasonable and orderly arrangement of structures, whose names are, for the most part, peculiarly appropriate. There is a danger lest, at this stage, when he is beginning to see daylight, he should occupy too much of his time with the names which must necessarily be given to individual structures. The names themselves have, of course, no intrinsic value, and are merely used to facilitate description. Attention should be devoted instead to discovering the functions of the structures displayed by dissection and to observing the relationship which exists between function and structure. Throughout his whole period in the dissecting-room the student should seek to correlate his Anatomy and his Physiology. If he does so he will find that he is simplifying the task in hand, for the one subject will help him with the other.

It is important, too, to appreciate that while the cadaver is being dissected the topographical information acquired by this means can be applied to the living subject. Most of the superficial structures and many of the deeper ones can be recognised either by the eye or by the hand in the living body, and the student should learn to identify on his own person, so far as is practicable, the various bony points, muscles, tendons, etc., which can be seen or felt. He should also endeavour to visualise on himself the position of the deeper structures which present no surface landmarks. After all, when he enters the wards, and in after life, he will have to deal for the most part with living patients, and, apart from actual surgical operations, he will be compelled to visualise on their bodies the position of the structures which he has dissected in the cadaver. The correlation between the dissected subject and the living body is difficult only when it is regarded as a separate section of human anatomy to be learnt from books, after all the dissections have been completed and in the last few days before the professional examination. The student, therefore, must constantly strive to form mental pictures of the regions as he dissects them, and to project these pictures on to his own body.

Once he has obtained a reasonable knowledge of the general anatomy of the body, the student who possesses any imagination will find Human Embryology a fascinating subject. Here he will find the explanation of much that may have hitherto appeared to be inexplicable, and here, too, he will see modifications of function and structure proceeding side by side.

The Guy's student is fortunate in having a modern and well-equipped department in which to work. In addition to the material which is always available in the dissecting-room and in the specimen rooms, the famous Towne collection of wax models, which is housed in the Anatomical bay of the Gordon Museum, can and ought to be utilised freely for study and for reference.

PHYSIOLOGY

Physiology, which forms the basis upon which scientific medicine, surgery and midwifery rest, will require the most earnest attention on the part of the student during the short space of two years which he can devote to it, and he will find that his understanding of the medical, surgical and pathological problems which he will meet later on varies directly with the thoroughness of his physiological ground work. Some elementary work on the subject such as the book by Bainbridge and Menzies should be read in order to obtain a general knowledge of the scope of the subject.

The student should attend the Lectures on Physiology—for times, *vide* notices—and also the tutorial classes, which are held by the demonstrators. During this time he should read the subject in some text-book such as Starling's *Principles of Human Physiology*, Halliburton's *Handbook of Physiology*, or Howell's *Text Book of Physiology*; *Essentials of Physiology*, by Bainbridge and Menzies, affords a concise, yet readable,

account of the subject. While attending the practical classes held during the winter, the student is advised to read *Practical Physiology* (published by Arnold).

Physiological Clinical demonstrations for senior students are held each week.

Candidates for the M.B. of London or other Universities must, in addition, attend the class in Advanced Practical Physiology, held twice a week during the second winter session, and this class should also be attended by men working for the first F.R.C.S. examination.

Those desirous of obtaining a wider knowledge should supplement the course of reading indicated above with original papers in the *Journal of Physiology*, with parts of *Recent Advances in Physiology*, by Lovatt Evans; *Principles of General Physiology*, by W. M. Bayliss; and *Applied Physiology*, by Samson Wright. Revision classes are held by the Demonstrators during the two months preceding the first F.R.C.S. and the M.B. examinations, and should be attended by all candidates.

A special course is held for candidates for the Honours B.Sc. of the University of London.

2. Pre-Clinical Period

THE extension by the Examining Bodies of the student's curriculum of study has allowed the addition of an extra period of three months' preliminary instruction before the student actually embarks on his duties in the wards.

It has long been felt that the time allotted to the study of Medicine, in the limited sense, has of late years been encroached upon and curtailed by his duties in the Surgical Wards and the Special Departments, and the opportunity was gladly seized of redressing the balance by giving him extra tuition in medical subjects.

The object of the Pre-Clinical Period is to instruct the student in the routine methods of examination of patients and in the detection and interpretation of physical signs, so that on his entry into the Medical Wards he will be able immediately to derive full benefit from the teaching of the Registrars and Physicians without the laborious explanations and tedious insistence on elementary points necessary before the introduction of the scheme.

In addition to this instruction, which he receives from the Clinical Tutor in charge of the course, the student gets a course of Clinical Chemistry from Dr. Ryffel and Dr. Knott, Elementary Pathology, Minor Surgery and Bandaging from the Surgical Registrars, and instruction in the methods of examining the eyes, ears, nose, etc., from the heads of the departments concerned.

3. The Wards

SURGICAL WARDS

THE appointment of surgical ward clerk is the first of the appointments held by the student during his Clinical training. In many ways it is the best of all the appointments, as most of the teaching, both by the Surgeon and the Registrar, is for his special benefit. Furthermore, a reputation for keenness and ability earned in those early days will follow him and help him throughout the rest of his time at the hospital. Each clerk is attached to one of the surgical units for three months, and it is his duty to record the history and progress of the cases allotted to him.

The wards are open to the student at 10 o'clock, and he should have written up the history of the case and, as far as possible, have examined the patient before the Registrar of the unit begins his round at 10.30, when each case is discussed and the report of the clerk confirmed or amplified. The student during this period will do well to confine most of his attention to the detection of the physical signs, and should procure from the Medical School Office a copy of the red book entitled *Instructions in Case-Taking, Surgical*, which he will find a very good guide to sound and systematic examination of the patients.

While he is acting as ward clerk the student attends a course in Elementary Pathology and Pharmacology, and at the same time has unrivalled opportunities of seeing dressing and operations, more especially during his "take-in" week. There will be much hard work, and many late hours, but there will be also incalculable compensation in seeing and learning the practical points that will stand him in good stead. He is doing his own work of ward clerk, but must remember that he is learning also to be a dresser.

As a dresser the student spends two periods of three months. While the surgical work is very dependent on the dresser for its smooth efficiency

and good results, the dresser must realise that he himself is very dependent upon his work, for it is during these six months that he lays the foundation of his surgical knowledge and sound after-care. Someone has said that every surgeon should be his own dresser, so that the dresser must appreciate the responsibilities that he assumes in thus deputising for his surgeon.

We have said very little about the actual tasks of the dresser; he should read the "standing orders" relative to his appointment, and from then on everything depends upon himself. He has been given a valuable appointment and one difficult to do well, but one that repays hard work almost more than any other appointment he can hold.

MEDICAL WARDS

To each medical ward clerk is allotted a certain number of beds, and he is expected to examine and write full reports on all patients who are admitted into these. Occasionally, it so happens that a patient is too ill to be examined except by the House-Physician and Physician, or that a case dies before the ward clerk has had an opportunity of seeing it. Under these circumstances he should obtain the history and an account of the symptoms, physical signs and progress of the case from the House-Physician, and should base his report on these data. It cannot be too strongly insisted that a report, however brief, must be written on every case, and it is of the greatest importance that *the diagnosis and remarks made by the Physician should be entered at once into the report.* Moreover, any errors detected by the Physician or Registrar in the original report should be immediately corrected. In the event of a patient dying, the ward clerk must obtain the abstract of the post-mortem findings and carefully enter it up, and it need hardly be said that all clerks should make every effort to see the post-mortem examination of any case they may have seen during life.

The medical wards are open to clerks from 10 till 12 noon, and from 1.30 till 6.30 in the evening. The Registrars begin their rounds at 10.30, and by that time a clerk should at least have full notes of the history of any new patient who may have been admitted into one of his beds, and he should have a full report in readiness for the Physician in the afternoon. Ward clerks should realise that they are expected to know the details not only of their own cases, but of every patient under their Physician. It is no excuse to plead ignorance because "this is not my case." If only a clerk will take the trouble to make himself conversant with each case in this way he will find at the end of his six months that an enormous amount of clinical material has passed through his hands, and he will probably have acquired enough knowledge of medicine to enable him to pass the Conjoint Final with but little additional reading. But so many men waste their time through sheer laziness in the medical wards, never realising that they are throwing away experience which would prove invaluable to them later on.

Again, the curriculum provides but six months for the study of pure medicine, whereas nine months are allowed for the pursuit of surgical appointments. Further, during their period of medical clerkship men are apt to take more time than is justified for the study of Pathology and Bacteriology, which they have neglected whilst in the Surgical Wards.

An hour spent in the wards after tea three or four times a week will give opportunities not only for going over cases and writing up reports, but also for seeing the House-Physician tap chests and abdomens, etc. The treatment, too, which each case is receiving, may well be studied at this time.

As regards reading, the best method is to study the text-book account of each disease as one comes across it in the wards or in discussion, and afterwards to compare, if possible, the text-book description with the symptoms and signs presented by the patients. At the same time the most important medical journals should be read regularly, for by this means only can the student keep himself in touch with modern work. The *B.M.J.* and the *Lancet*, the *Quarterly Journal of Medicine*, as well as the *Journal of the American Medical Association*, are especially recommended.

Books that may be recommended are the following: The well-known text-book by Osler, Dr. Poulton's revised edition of Taylor, Dr. Conybeare's *Text-book of Medicine*, and *Physical Diagnosis* by Cabot. For second three months ward clerks, the most important monographs in Allbutt's or Osler's *System of Medicine* will prove valuable and interesting reading. For laboratory work Hutchinson and Rainey's *Clinical Methods*, or Dr. French's book will be useful.

OBSTETRIC & GYNÆCOLOGICAL WARDS

After finishing appointments in the Medical and Surgical wards the student is posted to the Obstetric Department for six months. During the latter half of this time he is also attached to the Physician for the Diseases of Children. The Obstetric Dresser is responsible for case-taking in the wards and at Out-Patients, assists at operations, and during one month acts as Extern in the Maternity Charity. The Department has 26 beds reserved for gynæcological cases and 21 for the

reception of cases presenting complications in pregnancy, labour and the puerperium and normal labours.

As an intervening link between the Obstetric and Children's Departments is the Salomons Centre, in which the health of mothers and infants is fostered by the practice of preventive medicine.

With this wealth of clinical material it should be possible for every student to obtain a sound knowledge of methods of diagnosis and treatment founded on no small experience. It is, however, recognised by teachers of Gynæcology and Obstetrics that this desideratum is not always attained. It is undoubtedly true that many a young practitioner has to admit a regrettable ignorance of the ailments which afflict his female patients and of the proper management of the pregnant, parturient and lactating woman. And these subjects form the foundation upon which a successful family practice is built. Responsibility for this sad state of affairs hardly rests with the student, but he will do well if he starts his clinical work with the firm determination to avoid the pitfalls that beset his feet. He must realise that practical experience in diseases peculiar to women cannot be acquired in the space of the three months which he will spend in Queen Ward. As he passes from one appointment to another he must resist the tendency to develop the compartmental mind and must endeavour tc cultivate a wide outlook on medicine as a whole.

The study of the physiology and pathology of the functions of woman should be begun at the outset and continued throughout the period of clinical training. The man starting as Surgical Ward Clerk should include among his initial purchases a text-book on Gynæcology, for purposes of reference, and should make a point of attending the lectures of the Obstetric Surgeons. He should also avoid no opportunity of acquiring the " tactus eruditus " so essential to the accurate diagnosis of pelvic disorders ; the inherent impossibility of permitting a class of students to examine women patients one after the other renders it imperative that this experience be gained over a considerable period of time.

The study of midwifery he may well leave until he becomes an Obstetric Dresser ; the art of the accoucheur cannot be learnt from books.

4. Pathology and Bacteriology

PATHOLOGY

WHEN the student has passed the Second Conjoint or M.B. Examination, he is halfway through his medical curriculum, and he should have gained a working knowledge of the functions of the body in health. This knowledge is an essential preliminary to the study of the most important of the medical sciences, viz., Pathology, or the study of the functions of the body in disease. Throughout his life the student, if he continues to study and practise medicine, must ever keep pathology in the foreground. It is desirable, therefore, that the study of pathology be begun as soon as possible and continued throughout a medical career.

The subject is an exceedingly large one, and it is customary to divide it into several sections :—

1. General and Special Pathology ;
2. Morbid Anatomy ;
3. Morbid Histology ;
4. Bacteriology ;
5. Chemical Pathology.

Due attention must be paid to each of these branches in proportion to their importance relatively to one another and to clinical medicine and surgery as a whole.

During the pre-clinical period the student must attend classes and demonstrations in elementary pathology, bacteriology and chemical pathology.

During the Autumn, Winter and Spring Terms, systematic lectures and demonstrations in pathology and bacteriology are given. Three lectures and three practical classes are held weekly, the former at 9 a.m. and the latter at 12 noon.

Regular attendance at these classes is imperative, and the attractions of the wards and of clinical work should on no account be allowed to interfere with laboratory studies.

While medical ward clerks, during their tenure of office, should attend classes on chemical pathology, it is essential that throughout all ward appointments no opportunity should be missed of continuing the study of pathology.

Apart from set lectures and classes, students and house-officers are cordially invited to make use of the resources and facilities provided by the laboratories in order to add to their knowledge of a subject that lies at the root of all successful clinical work.

Every man should, as far as is practicable, follow out the pathology of each and every one of his cases.

Is a bacteriological investigation to be made ? He should follow it out as far as possible. Is a portion of tissue removed for microscopical examination ? He should see and examine the section. Is a chemical examination demanded ? He should endeavour to see the analysis carried

out. He should never miss an autopsy on any one of his cases, and should make a point of keeping a special note-book in which he can enter the clinical history and progress of a case, the post-mortem findings, if the case comes to autopsy, and the result of his histological examination together with a general review of the case in the light of that further evidence.

Set hours cannot be given for these lines of study; they must be fitted in as time and opportunity permit. In short, efforts should be made to see as much practical work and as many demonstrations in pathology as can be arranged. There are few days when no pathology can be learned. Post-mortems are held nearly every day at 1.30 p.m., except on Wednesdays and Saturdays, when the hours are 12.30 p.m. and 11.30 a.m. respectively. Attendance at these will amply repay the time expended.

Informal classes in Pathology are held three times weekly during the October and May terms. These, though primarily intended for M.B. students, are suitable for, and should be attended by, those sitting for Part I of the M.B.Cantab. and the Final M.B. of Oxford or London University.

During the later clinical appointments certain students may hold a few pathological posts, such as Student Demonstrator, Assistant to the Demonstrators of Morbid Anatomy, Student Assistant in the Bacteriological Department. One or more of these may be held in turn, and they prove exceedingly valuable from the learners' point of view.

There are many books which might be recommended, and what suits one student may not prove attractive to another. The following, however, will prove adequate for all the students' purposes: in Pathology, either MacCullum's, Muir's, or Beattie and Dickson's; in Morbid Histology, Donaldson's Handbook, and for Bacteriology either Muir and Ritchie's Manual or Bigger's Handbook.

BACTERIOLOGY

Bacteriology, although for a time regarded by the clinician as affording information of merely academic interest, has now made a most profound impression upon the theory and practice of both medicine and surgery, and by providing specific treatment for many microbial infections has emphasised the necessity and stimulated the demand for exact diagnosis, and it is towards this direction that the student's interest is guided by the class in Practical Bacteriology.

Particular attention is devoted from the first instance to the technique of various investigations undertaken in connection with ward work. Thus the student himself examines sputum, pus and morbid exudates by various methods to demonstrate the associated bacteria. He is instructed in staining methods and the practical work of culture making, and is, moreover, encouraged to repeat for himself during the intervals between successive classes any observations and experiments previously carried out, in order to equip him for the performance in general practice of those more obvious methods of bacteriological diagnosis which experience has shown are both reliable and valuable. Demonstrations are also given upon the life history of the most important of the organisms which are pathogenic to the human race, and by the study of "pure cultures" an attempt is made to impress the chief characteristics of each upon the mind of the student, whilst the changes such organisms undergo or produce when they gain entrance to the human tissues are carefully emphasised.

Throughout the course considerable stress is laid on the further applications of bacteriology to treatment, including the use of various remedial agents such as sera and vaccines, which have been elaborated in the bacteriological laboratory for the treatment of disease, together with those facts and theories relating to natural and acquired immunity upon which bacteriological therapy is based.

5. The Special Departments

THE CHILDREN'S DEPARTMENT

In-Patient Accommodation.—Dr. Cameron has under his care 14 cots in the Children's Ward. On two days in the week, at present on Tuesdays and Thursdays at 2 p.m., Dr. Cameron goes round the ward and gives clinical instruction.

Out-Patient Department.—Children under 10 years of age are seen in the Children's Department at Out-Patients on Mondays, Wednesdays and Fridays from 9.30 until 1 o'clock. Dr. Cameron attends on Mondays and Fridays at 10 a.m., when clinical instruction is given.

The Salomons Centre is for the care of the mothers and children of the Midwifery Charity; attendances at the Centre are made by dressers in the Obstetric Department.

OTO-RHINO-LARYNGOLOGICAL DEPARTMENT

This Department is organised on the unit system. There are two units, one under the care of Mr. Mollison, the other of Mr. Layton. Patients are seen in the Out-Patient Department, admitted when necessary to the special wards, Dorcas and Christopher, and returned to the Out-Patient Department. This arrangement allows members of each unit to follow up the cases. Mr. Mollison's firm sees out-patients on Tuesdays and Fridays at 11.30 a.m., Mr. Layton's on Mondays at 9 a.m., and Thursdays at 11.30 a.m.

Dressers are appointed to the respective firms, and have every opportunity of becoming expert in the technique of examination of the ear, nose and throat, and of gaining experience in diagnosis and treatment. Large numbers of school children are seen. Minor operations are performed in the Out-Patient Department; these include, amongst others, operation for the removal of nasal and aural polypi, and of tonsils and adenoids, and for the lavage of the maxillary antrum; these operations are performed under the supervision of the Surgeon or the Clinical Assistant.

Twenty-seven beds and six cots are now allotted to the Department, and each firm operates twice a week. Mr. Mollison and Mr. Layton " take-in " during alternate weeks, and emergencies are admitted under the care of the firm on duty.

THE OPHTHALMIC DEPARTMENT

The Ophthalmic Department of the Hospital is in charge of the three Ophthalmic Surgeons. They are helped by three Assistants, one House Surgeon and Dressers. The Dressers are appointed four times a year for a period of three months, and assist the Surgeons at Out-Patients and at operations, and are responsible for the recording of the cases both in the wards and at Out-Patients. The Ophthalmic Department is an open field for any student to explore as far as he is willing and able, the amount of clinical work being sufficiently great for him to see all the more ordinary and common diseases of the eye in the space of three months.

The student will soon find that he is quite unable to form any opinion of his own on an ophthalmic case until he has mastered the use of the ophthalmoscope and can readily and accurately decide what is the refraction of the eye, and if the " fundus oculi " is healthy and normal. The theory of retinoscopy can be taught and is simple; the practice, however, requires constant application by the student before he can hope to obtain any sort of facility in it. The difficulties are mainly initial ones, and any time and trouble expended in mastering them will well repay any man in after life when he has qualified and is in practice.

MEDICO-NEUROLOGICAL CLINIC

Advanced Ward Teaching for Post-Graduates and Students is given on Tuesdays at 2.15 p.m.; Drs. Hurst, Marshall, Symonds, Gillespie and Witts meet in Mary Ward for the combined round at which a discussion is held on a series of cases.

NEUROLOGICAL DEPARTMENT

This Department is under the direction of Dr. C. P. Symonds and now provides facilities for a full three months clerkship, which offers excellent opportunities to those who desire practical experience in one of the most difficult branches of medicine. Wednesday and Saturday mornings are devoted to Out-Patient work; Dr. Symonds holds a teaching round on Thursday mornings in the Eye Ward, while the Registrar usually goes round on Tuesdays and also supervises the operation of lumbar puncture on out-patients selected for that test.

DEPARTMENT OF PSYCHOLOGICAL MEDICINE

Now separated from the Neurological Department and providing a full three months course of Clinical tuition. In addition to Lectures and Clinical Demonstrations held at a mental hospital during the summer term, Dr. R. D. Gillespie is also responsible for a series of addresses on Normal Psychology during the spring session. Out-patients are seen on Wednesday and Saturday mornings.

THE DERMATOLOGICAL DEPARTMENT

Out-Patient Days.—Mondays, New Cases, 11.30 a.m. Old Cases, 12 noon.

Tuesdays, New Cases, 9.30 a.m. (children); 10 a.m. (adults). Old Cases, 1.30 p.m.

Thursdays, New Cases, 9 a.m.; Old Cases, 9.30 a.m.

Wards.—There are three male and three female beds in the Eye Wards for Dermatological cases requiring careful supervision or treatment in bed.

Instruction in the diagnosis and treatment of diseases of the skin is given in the Out-Patient Department, and clinical demonstrations on selected cases are held from time to time.

THE GENITO-URINARY AND ORTHOPÆDIC DEPARTMENTS

These two appointments are now taken together, and have a common House Surgeon. Students acting as Dressers in the Genito-Urinary Department have excellent opportunities of acquiring knowledge which will be useful to them in actual practice and examinations. Out-Patients are seen on Tuesday and Friday afternoons.

The Department has 7 male in-patient beds in Christopher, 2 female beds in Queen, and 1 cot in Evelyn.

Students should realise that their attendance at this Out-Patient Department is very necessary, as is evidenced by the very advanced state of disease in which some patients arrive for examination.

The Orthopædic Department comprises a large out-patient clinic and a number of beds devoted to patients suffering from deformity. Out-patients are seen on Monday and Wednesday afternoons, and Minor Operations performed on Friday afternoon, and in the Out-Patient Department the student will meet with every variety of deformity, congenital and acquired. Considerable facilities are afforded for experience in the relief and cure of all chronic diseases of bones, joints, muscles, etc. Instruction in the principles and most modern practice in the use of appliances, plaster technique, and the more useful forms of Physio-Therapy is given by Mr. Trethowan, the Orthopædic Surgeon, and the Registrar. Numerous operations of a minor nature are done, such as manipulations for stiff and painful joints, correction of misshapen and rickety limbs, correction of scoliosis and immobilisation of tuberculous joints.

The in-patient beds are devoted to the most serious operative cases, such as extensive tendon transplantations, correction of malunited fractures, bone-grafting, the making of new joints, etc. Guy's is a pioneer hospital in possessing an excellent workshop for the manufacture of every form of splint and appliance.

It is in the Orthopædic Department that the principles underlying the mechanical disabilities of the limbs and spine are emphasised and their explanation made clear, and the experience to be gained here is invaluable. The great utility of orthopædic surgery has become evident to very many during the war.

THE MASSAGE DEPARTMENT

The New Department is now in full working order, and patients are treated between the hours of 2.30 p.m. and 4.30 p.m. on Mondays, Tuesdays, Thursdays and Fridays, and between 9.30 a.m. and 12 noon on Wednesdays and Saturdays.

The point of interest to Medical Students is to see the work carried out on patients by Massage and Medical Gymnastics. A large variety of cases are being treated daily, which include fractures, stiff joints, dislocations, nerve injuries and disease, lung and heart disease, congenital conditions and poor development in children, etc.

THE TUBERCULOSIS DEPARTMENT

The Tuberculosis Department is a reference Department for out-patients suffering from diseases of the chest. Patients attend on two days a week, Thursday afternoons and Monday evenings. For suitable cases arrangements are made for admission to sanatoria. The patients return to the Out-Patient Department after leaving the sanatorium. The Department provides extensive opportunities for studying methods of investigating early and doubtful cases of pulmonary tuberculosis, also for observing special forms of treatment such as artificial pneumo-thorax. A special appointment is now connected with this Department.

THE DEPARTMENT FOR VENEREAL DISEASES

This Department is open from 9 a.m. to 8 p.m. on all week-days, and from 10 to 12 noon on Bank Holidays.

Treatment is carried out for all venereal diseases in women, men and children, and patients may be referred from other departments at any of these times.

Students may attend the male section any evening from 5 p.m. to 7 p.m., and Dressers in the Gynæcological Department may attend the female section on Mondays from 5 p.m. to 7 p.m. or Wednesdays from 2 p.m. to 5 p.m.

Demonstrations are held on Thursdays at 5 p.m. in the Demonstration Theatre in this Department

Five Dressers are appointed to the Department every three months.

PRACTICAL PHARMACY AND DISPENSING

One of the many important things all medical students must know is how to write a prescription. It may even be necessary for the majority, when qualified, to be able to dispense the same. All students, therefore, would be well advised to acquire as much knowledge of the subject as they can.

The student is taught, practically, how to dispense the different medicinal preparations; he learns to write prescriptions, due regard being paid to doses and incompatibilities.

The course is conducted by the Hospital

Pharmacist and covers the syllabus of the Practical Pharmacy of the Conjoint, 2nd M.B. London, 2nd M.B. Camb. (Part III) and the 2nd B.M. Oxford.

ELECTRICAL AND ACTINO-THERAPEUTIC DEPARTMENT

The treatments carried out in this Department include the following: diathermy, high frequency, the application of the constant, faradic and sinusoidal currents, radiant heat, and static electricity, treatment by the Finsen and mercury vapour lamps and radiotherapy.

A special Department has, for some time, been opened for artificial sunlight treatment.

A large number of cases are treated in the Department: Chronic joint conditions, nerve injuries, wasted muscles, skin diseases such as ringworm, psoriasis, eczema and rodent ulcer. There are also a large number of cases of malignant disease undergoing treatment with X-rays and radium.

FRACTURE DEPARTMENT

This Department deals with all fracture cases which are treated as out-patients throughout; they attend on Thursday afternoons at 1 p.m. The appointment of dresser in this Department is a useful one, and is usually held concurrently with one of the later appointments that a student can obtain. Much experience in the treatment of uncomplicated fractures is obtained; at the end of the afternoon, plasters are applied to or removed from the various patients seen.

6. Books

ADVICE on this matter is extremely difficult to give, for individual needs are almost as varied as the length of individual pockets, and the adornment of a virgin bookshelf is bound to depend on both these factors. Except in the case of certain essentials for routine work, such as the dissecting room manuals, it is perhaps better to postpone the inevitable visit to the bookseller and first to consult the various tutors and demonstrators in the subjects concerned. They will be more than willing to extend any suggestions made under various headings in this issue of the *Gazette*, and their experience will enable them to advise that blend of old and new best fitted to the individual case.

The rapid advance in medical knowledge unfortunately renders the second-hand book almost worthless except in the case of Anatomy, where the advances, though many and real, are not apt to be so revolutionary as in Physiology and Medicine itself. A Physiological text-book probably becomes out of date in less than a year, a text-book of Medicine in two or three years at least, so that in these subjects at any rate recent editions are essential.

All that is most distinctive in current Guy's teaching is to be found in the *Guy's Hospital Reports*, which contains articles written for the most part by members of the Hospital Staff. The unqualified man has the special privilege of purchase at a much reduced price, an advantage that he will be wise not to neglect.

A great number of publishers are responsible for medical books, and a just estimation of the rival claims for their various productions is quite beyond the scope of this article. Mr. Humphrey Milford at the Oxford University Press offers a wide range of medical works of uniform excellence in subject matter, binding and printing. Messrs. Churchill publish Taylor, Gask and Wilson, the new *Recent Advances Series*, and many other well-known works. E. & S. Livingstone, of Edinburgh, present books containing the valuable teaching that emanates from both sides of the Tweed; they also cater for the hard-pressed student in an extensive *Catechism Series*, intended to aid his last-minute revision. Baillière, Tindall & Cox are responsible for the large Rose and Carless and a small synopsis series in their well-known *Aids*. Many splendid books are published by John Murray, Gaber & Gwyer, Ltd., Cassell & Co., Longmans, Green & Co., Macmillan & Co., John Bale, Sons & Danielsson, Edward Arnold, and Constable, while Lewis, of Gower Street, sponsors a number of books having a specialist flavour—such as Rawling's *Surface Markings* and Martindale's *Extra Pharmacopœia*, to select at random. Messrs. Lewis also run an excellent medical circulating library, which should prove invaluable to the student who wishes to dip briefly into all the latest books. This is assisted by reference to their catalogues, which can, if desired, be purchased. Messrs. Foyle, of Charing Cross Road, specialise in second-hand books and also in those on sporting, as distinct from scientific subjects.

Mr. H. H. Grattan, in the Borough High Street, is the official bookseller to the Hospital, and is able to supply most of the books in common demand over the counter; any others he can be relied upon to obtain as quickly as possible.

To the Dental Student

By H. C. Malleson, Esq., L.R.C.P., M.R.C.S., L.D.S.

THE dental student, like his medical confrere, is assured of a warm welcome to Guy's, and, although he soon begins to specialise in the particular branch of surgery he has elected to follow, he will find that their paths are often the same. This will prove of inestimable value to him now and afterwards, it will keep his mind broad, and he will soon appreciate how interdependent are medicine, surgery and dentistry.

There is much to be done before he obtains a qualification, and the new student may be somewhat appalled at the mass of work that is required of him from the various bodies concerned before he obtains a registrable degree or diploma, but steady application on his part will enable him to do all that is necessary in the four years after passing his Pre-Medical Examination. The profession the dental student has chosen is essentially a craft, and it cannot be stressed sufficiently that his success in that career depends almost entirely on his manipulative dexterity, and it therefore behoves him from the beginning to do his utmost to excel in this essential quality.

The academic side of his life at Guy's must, of course, take first place, but recreation is also necessary, and he is fortunate in that at Guy's the Clubs' Union provides him with numerous opportunities for sport of all kinds.

The five years or more at the Hospital, if profitably spent, will be the happiest years of his life—a time to look back upon with pleasure and a time when he will make lifelong friends whom he will frequently meet in after years either as colleagues in practice, in professional societies or in the re-union of old Guy's men.

Guy's is proud, and justly proud, of her students, and it is " up to " them to justify that pride. The Hospital has little use for anyone who lets her down.

The Dental Curriculum

THE Dental Student is supplied at the Medical School Office with the Prospectus, Standing Orders, List of Instruments, Calendar and Clubs' Union Book.

These pamphlets should be carefully read in order that acquaintance may be made with the general arrangements of the School and the scope of the work upon which the student will become engaged.

Notices regarding the time and place of Lectures are to be found posted up by the main entrance of the Dental Department.

Instruments having been purchased at a dental depot, the student should satisfy himself that he has been supplied with all of those described in the Hospital list, and have them inspected by his demonstrator.

It is inadvisable to purchase instruments before they are required. Instruments for prosthetic work are required for the B.D.S. course at the commencement of the second year, and for the L.D.S. course at the commencement of the first year. Clinical instruments are required for the B.D.S. course at the commencement of the fifth year, and for the L.D.S. course at the commencement of the third year.

Among the various depots at which instruments may be purchased are the following : The Amalgamated Dental Co., Broad Street, Golden Square, W.C., and 16, St. Thomas's Street, S.E.1 ; The Dental Manufacturing Co., Alston House, Newman Street, W. ; Cottrell & Co., 15-17, Charlotte Street, W.1 ; L. Porro, Ltd., 33, New Cavendish Street, W.1.

The course of study for the B.D.S. London covers a period of five years, of which the first year consists of Physics, Inorganic Chemistry and Biology. The second year is occupied with the study of General and Dental Anatomy, Physiology, Pharmacology and Dental Prosthetics. The study of these subjects is also continued in the third year, together with Pathology, Bacteriology and Surgery. Clinical work in the wards, Surgery, Medicine, Anæsthetics, Pathology and Bacteriology, together with Dressership in the Extraction Rooms, Dental Metallurgy and Dental Prosthetics constitute the fourth year's work, and the fifth year is occupied by purely Dental subjects, these being Clinical work in the Conservation Room, Orthodontics, Operative Dental Surgery and Dental Surgery and Pathology.

L.D.S. students who come under the New Regulations must pass the Pre-Medical Examination in Chemistry and Physics before they can commence their four years' course. Subsequently, their first term is devoted to Dental Mechanics and Elementary Anatomy and Physiology, and it is important that the student gets a good grounding in the former at this early stage. During the

remainder of the first year the student continues his work in these subjects and takes Part III(*a*) of the First Professional Examination at the end of the period. In his second year he studies Dental Metallurgy and completes his training in Dental Mechanics. In his third term of this year he attends Lectures on Dental Anatomy.

Third-year students for the L.D.S. commence the Clinical courses with a period of probationary work upon the phantom head. The operative course, conducted by a Staff demonstrator, is very comprehensive. It includes most of the operations that the student will subsequently be called upon to perform upon patients, namely, gold and other fillings, crowns, inlays and the treatment of devitalised and septic teeth. These operations upon the dummy form an excellent ground work in operative dentistry.

Thereafter the course of work consists in holding and diligently carrying out the work of the following appointments: *Probationer Dressership in the Conservation Room; *Dressership in the Conservation Room; *Dressership in the Children's Department; Dressership in the Ordinary Extraction Room; Dressership in the Gas Extraction Room; Casualty Dressership; Clerk to Anæsthetist.

A student, apart from those holding the post of Assistant Dental House Surgeon, is not allowed to work in the Conservation Room unless he holds one of the appointments marked *.

The Dental Anatomy and Physiology examination is taken in the second term of his third year.

An optional X-ray course may be taken by the student in his final year.

The time varies, according to whether the course for the B.D.S. or L.D.S. is being taken, at which a student will come into actual contact with Hospital patients, but he should always endeavour to be punctual in his appointments with them. There is nothing more irritating and annoying to a patient than to be kept waiting unnecessarily; it also delavs to a very great extent the easy working of the Department.

Further, the student should remember that the cultivation of a courteous and gentle manner towards all patients will become in the future probably the greatest asset in his private practice.

Dental students will profit by following the practice of the Special Departments of the Hospital, *e.g.*, Eye, Throat, Ear. They will also have numerous opportunities of observing the more remote effects of dental disorders in the General Wards and Out-Patient Department.

Students in difficulties about their work and needing advice are invited to consult the Dean, Sub-Dean, Senior Dental Officer or any other member of the Staff, who will be pleased to do what they can to promote their interests.

*Courses on Gingival Hygiene, local anæsthesia, and fourth year demonstration in operative dental surgery will also be attended.

Guy's Hospital Clubs' Union

THE formation of the Clubs' Union, by the amalgamation of the then existing clubs, took place in the summer of 1891. The object of the amalgamation was to further the interests of the different clubs and societies by their mutual support, and to simplify the collection of subscriptions. By the payment of an annual subscription, at present amounting to 5 guineas per annum, a student obtains the privilege of membership of all the constituent institutions, whereas non-members are excluded from participating in the activities of any.

The affairs of the Clubs' Union is under the control of the Clubs' Union Council, consisting of six Staff and six Student representatives.

The Constituent Institutions are: Association Football Club, Athletic Club, Cricket Club, Debating Society (at present quiescent), Dental Society, *Guy's Hospital Gazette*, Golfing Society, Hockey Club, Lawn Tennis Club, Pavy Gymnasium, Pupils' Physical Society, Rifle Association, Rowing Club, Rugby Football Club, Sailing Club, Students' Club and Swimming Club. The Christian Union, the Guy's Physiological Society and the Guy's Hospital Musical Society are at the moment not affiliated.

The ground of the Clubs' Union is within 15 minutes' run of the Hospital (in this respect we are very fortunate), situated close to Honor Oak Park Station on the Southern Railway (Brighton Section) and close to Crofton Park Station on the Southern Railway (South-Eastern Section). It is nine acres in extent, and is the headquarters of the Guy's Football, Cricket, Athletic and Lawn Tennis Clubs. The Hockey and Junior Rugby Clubs are at the moment provided for outside, though it is hoped that one day they, too, may be brought nearer home. The Golfing Society has privileges at Sidcup, Foxgrove and the West Kent Golf Clubs, by arrangement.

The Rowing Club is affiliated to the London Rowing Club at Putney and members are entitled to all the advantages of that club.

Members of the Clubs' Union are allowed to use the Swimming Bath at the back of the Nurses' Home on alternate days, by kind permission of the Nurses, and there is a Fives and Squash Court close to this where privileges are also extended to members, by kind permission of the Superintendent.

THE STUDENTS' CLUB

The Students' Club, perhaps the most important section of the Clubs' Union, is housed in the College, where there is now an excellent Catering Company, open only to members of the Clubs' Union. The Pavy Gymnasium is also housed here, where classes are given in Boxing, Fencing and Gymnastics. The Physical and Dental Societies hold their meetings in the College.

Further information about the different clubs can be found in the Clubs' Union Year Book—obtainable at the Medical School Office, and new students are also advised to consult the notice boards in the Colonnade.

Considerable improvements have recently been affected at the ground at Honor Oak Park. The Grand Stand is capable of seating 800 people and the small stands 100 each. A new hard Tennis Court has recently been put down and is open for general use. This year a considerable sum has been spent upon thoroughly re-draining and re-turfing the ground, and it is now in excellent condition.

An excellent programme of home matches has been arranged by the Rugby Football Club—*vide* Fixture Cards—and it should be noted that members of the Clubs' Union are entitled to free admission to the ground on these, as on all, occasions, on production of their membership cards.

For many years it has been our hope to effect a reduction in the subscription fees, but when the many privileges are considered, the fee is only moderate. Improvements to the Pavilion are urgently necessary, as is also the desirability of obtaining a further piece of ground. It is to the success of these two projects that the Council will devote their energies in the next few years.

Rugby Football Club

THIS year we start with a very favourable outlook, and the fixed intention of recapturing the Inter-Hospital Cup—which is out of place in any other hands but ours. Last year we were handicapped in body and spirit by the quagmire at H.O.P., but, nevertheless, managed to beat many of the best club sides in the country. With most of the same team back, and the prospect of a very delightful pitch to play on, we can rightly hope to wipe out the memories of the Cup Tie last year, when ours was an already tired-out team, and to uphold our prestige both in club football and as rightful keepers of the Cup.

We are very fortunate to have both last year's Captain and Vice-Captain still in office. Nobody who hasn't played in the same side as Windsor Lewis can realise what his tremendous interest and keenness, his sympathy and his initiative and inspiring play mean. There is every indication that he is again playing up to his old form, and we wish him every good wish for his Welsh Caps once again. J. S. Batchelor, the hard-working leader of the pack, will again ably and unsparingly back him up in leading our side through a successful season.

The ties of matrimony have been too much for T. Fichardt, and we will miss his startling and magnificent running in the three-quarter line. J. R. F. Popplewell, the veteran of the side, will only be with us till Christmas at the latest, and will then be a great loss. G. F. Lashmore is another forward we will sadly miss, we hope only temporarily, through an annoying malady. But we are fortunate in having P. C. Alexander, the Oxford centre, up this season, and he, Windsor Lewis and J. E. Giesen, will form a very dangerous trio in the back line.

The pack, judging from experience, weight and toughness, should do very well, especially if they can pull together more. We hope R. A. P. Hogbin will put up a record number of goals this season and, among others, get the trial he deserves.

The Hospital depends a good deal in Rugger on its forwards, and it is to be hoped that this season there will be no shortage of new and old talent showing up to give support to the rather shallow line seen so far.

Guy's must and will retain its record—and to do this there must be plenty of material to draw from, now and in future seasons. We therefore welcome all newcomers to Guy's Rugger, and urge them to write their names on the list in the Colonnade. A trial game will be held early in October. Personal application may be made to the secretaries of the various teams.

Fixture cards can be had from the secretaries and from the College Porter's Lodge.

In conclusion, we would wish every team, from the first downwards, a successful and enjoyable season 1931-32.

Association Football Club

THE 49th Season of the Association Football Club has been the most satisfactory for several years. Firstly, the Hospital regained both Senior and Junior Inter-Hospital Cups by defeating Bart.'s in both Finals. Secondly, and perhaps the most important, all teams enjoyed successful seasons in friendly matches, the newly-formed 3rd team fully justifing the experiment by playing all its matches and winning the majority of them, despite the last-minute depredations of higher elevens, which occurrence we do not anticipate this season.

We much regret losing the regular services of Cantor, Wood and Sharp, who have been enthusiastic supporters of the 1st XI for several years, and to whom we owe much for the return of the Senior Cup to Guy's after its lengthy sojourn in other hands. We shall find their places hard to fill, but look forward to the junior members repeating the successes of last season.

Mr. Fagge has very kindly consented to continue as President of the Club, while E. J. Stubbs has been elected Captain, B. Holden Vice-Captain, and E. Marshall and L. Cosin as Secretaries.

Although the number wishing to play Soccer in the coming season has exceeded expectations, there is still ample room for new players, expecially in the various forward positions. Every new player who puts his name on the list at that end of the colonnade nearest the park is assured of an early trial in one of the teams, but we would urge the importance of constantly looking at the list of teams put up two or three days before the date on which matches are played. This can be ascertained from fixture cards to be obtained from the secretaries. A list of reserves will be put up in conjunction with the 3rd XI list, and the secretary concerned (L. Cosin) will be grateful if any of those wishing to play would tick off as soon as possible after the exposing of the notice, as it constantly happens that one or more players find themselves unable to turn out just before the match. When they have ticked off they should scan the lists occasionally to see whether reserves have been included or players promoted in the teams.

The 1st XI, in addition to its usual opponents, is playing Clare College, Cambridge; St. Edmund's Hall, Oxford; Hertford College, Oxford; and the Casuals.

The 2nd XI is playing a record number of games (37), and many new fixtures have been introduced, among which are Carshalton, St. Thomas's Hospital, Imperial College and O. Wilsonians. The following fixtures were omitted from the fixture list:—

Oct. 21	St. Thomas's Hospital II..	Away
Jan. 30	Wilson's G. S.	Away
Mar. 19	O. Brentwood II	Away
Mar. 26	Brighton Grammar O.B. II	Home

The 3rd XI also has a full list (33 games), and new games with O. Olavians, Carshalton, O. Ardinians, Bart.'s and Alleyn O.B. have been arranged.

We confidently anticipate that the 50th Season of the Guy's Hospital Association Football Club will be one of the most successful it has ever known.

L. COSIN.

Hockey Club

THE 1931-32 season brings a very welcome change of ground, Motspur Park replacing Ealing. The new pitch promises to be the best that the Hospital has had for some years, and it is hoped that every opportunity will be taken of using it. A fair number of last year's side is still with us, and it is expected that the somewhat disappointing results of most of last season will be greatly bettered, and that the form shown in the Bournemouth Festival, when we won all our matches, will be maintained.

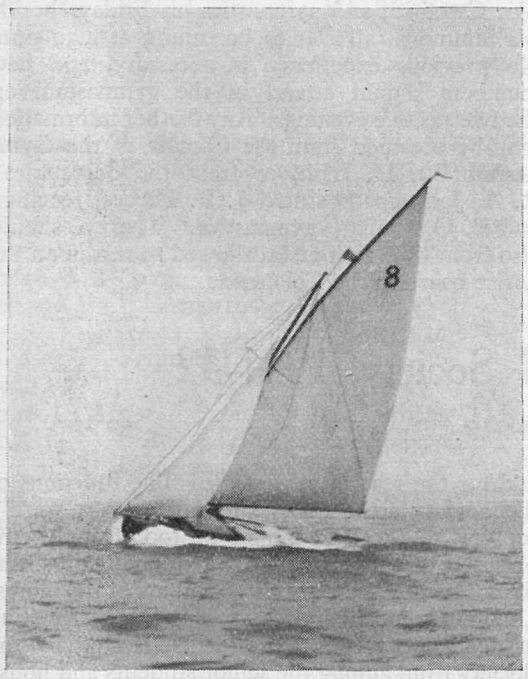
A very hearty welcome is given to all newcomers. Two elevens are being run as usual, and the advertised fixtures are being greatly improved upon so that regular games will be possible throughout the season for both 1st and 2nd teams.

We think this year that, given enough enterprise, we have the makings of a side amply good enough to win the Cup which has eluded us for the past few seasons, and the Captain and Secretaries are looking for the necessary support from those who have decided to play hockey to achieve this, the main object of the coming six months.

Sailing Club

IN 1925 a group of keen cruising men, including the late W. Lister, E. H. Roche (of Guy's), and L. Parker Tupling, decided to form a sailing club for London's medical and dental students and house-men. In order to obtain better co-operation in the management of a club which drew its membership from several widely scattered institutions it was decided to form a local branch in each hospital. The flag-officers were elected at the joint general meeting, whilst the committee was formed by the secretaries of the respective hospital clubs. Two years ago the club was recognised by the Y.R.A.

The club now owns a fleet of 15-ft. dinghies equipped with cruising and racing sails, which make them suitable both for the beginner and the racing enthusiast. Since the club moved to Burnham an arrangement has been made with the Royal Corinthian Y.C. whereby Hospital members are admitted at a special subscription of £1 1s. per annum. This entitles them to use of the club for meals and sleeping accommodation, except during Burnham Week.



The R.C.Y.C. gives races for the hospital class twice a month in the season. There is Inter-Hospital racing every day during Burnham Week, and at the end of the season the U.H.S.C. regatta takes place. There are two trophies competed for in the regatta: a team race with two pairs from each hospital and a single-handed contest.

The U.H.S.C. offers excellent facilities for men wishing to take up sailing or wishing to race, and there is no finer tonic than a week-end's sailing at Burnham (or anywhere else) after a spell in the Borough.

Any Guy's men, while in the Dental School, Medical School or Wards, who sail or are keen to do so, should see the Secretary, who will be pleased to give particulars as to cost, cheap fares and management of the dinghies—and also to collect the modest subscription of 5s.

G. B. PALMER,
Hon. Sec.

Rowing Club

THE Hospital Rowing Club has, during the past season, been suffering from a lack of experienced oars, but the new material has been shaping very well. We put up a better time in the Head of the River Race (for which we were the first hospital to enter) than we have ever done, and beat the only other hospital entered by several seconds. Next year we hope to win a place in the First Division, and fixtures will be arranged with the London School of Economics and Imperial College.

The Annual General Meeting of the Club will be held shortly, and any men interested in rowing will be welcomed. We row from the London Rowing Club, at Putney, and anyone when not rowing in a Hospital crew can get a place in one of the crews of that club.

J. B. SPEARMAN,
Hon. Sec.

Golfing Society

THE Golfing Society, though small, is very active. We were successful last year in reaching the Final of the Inter-Hospital competition, to be beaten by London Hospital; and, of eight matches played this season, six were won, one was lost and the other halved. Activities for the coming year include the same features, and, for the benefit of those new to the Hospital, it should be said that the Society is affiliated to Sidcup Golf Club, who allow us to play at reduced green fees—2s. 6d. on weekdays, 5s. on Sundays. The course is within easy reach of the Hospital, 20 minutes by train from London Bridge and three minutes' walk from Sidcup Station, the cheap return fare being 1s. 6d. Monthly Medal and Bogey competitions are held throughout the year, and the hon. secretary will allot a handicap to anyone on application.

The greatest difficulties of playing golf near London have been, therefore, removed, and the general standard in the Hospital has improved in consequence. There is still a shortage of entries for the various competitions—we hope that this will be improved; but the Hospital side is very much better than it has been for some time, and if, as we hope, we are successful in the Inter-Hospital Cup this next month, a long-cherished ambition will be realised, as the Hospital has never yet held this trophy.

F. J. R. STONEHAM.

The Pavy Gymnasium

THE Pavy Gymnasium, which last year was improved and beautified in no small measure, offers to all members of the Clubs' Union instruction and practice in boxing, fencing and gymnastics.

Last season was a successful one for all branches, and the high standard shown in recent years was well maintained. The Boxing Club gave an excellent performance in the Inter-Hospitals' Competition, while the Fencing Club, besides winning the major proportion of its matches and securing second place in the Inter-Hospitals' Competition, gained several notable successes in University Championships. The gymnasts, although they had no matches or competitions to prove their worth, showed considerable improvement throughout the season, and gratified all as much by the polish of their performance as by their beauty of figure in the Display which was given at the close of the season. This, the first of its kind for many years, comprised a demonstration of the prowess and grace of the members of the Gymnasium, assisted by the ladies of the Massage Department, and provided the newly-laid floor with as much appreciative humanity to the square foot as it could reasonably support.

All new members of the Clubs' Union who are interested in boxing, fencing, or gymnastics are invited to join the respective clubs. Boxing is held on Tuesdays around Mr. Alf. Hewitt, fencing on Thursdays before Capt. Pinkerton and Mr. Caseford, and gymnastics on Fridays beside Mr.Simmons, all classes beginning at 4.30 p.m. No previous experience is necessary, and new members should attend in the gymnasium on their respective evenings. Any further information may be obtained from the Captain of the Gymnasium, D. H. Irish, or from the Secretaries: R. A. Johnson, boxing; J. R. Forbes, fencing; and E. O. Clough, gymnastics. The eye should also from time to time be allowed to rest upon the notice board in the Colonnade.

The Pupils' Physical Society, 1931-32

By D. W. C. Northfield, F.R.C.S., L.D.S.

Hon. President—John Fawcett, M.D.

Hon. Vice-Presidents.—Sir William Hale-White, K.B.E., M.D.; Sir W. Arbuthnot Lane, Bart., C.B., M.D.; A. P. Beddard, M.D.

Presidents.—J. S. Batchelor; W. H. Bradbeer; A. R. Clarke; J. C. Colbeck; D. Erskine; W. J. Ferguson; D. W. James; G. Lashmore; N. S. Plummer; R. A. Ratcliffe; H. Rosenburg; J. B. Schofield; C. K. Simpson; B. Southwell; G. V. Steward; G. Taylor.

Hon. Secretaries.—D. W. C. Northfield, F.R.C.S., L.D.S.; R. S. Bruce Pearson, M.R.C.P.

THE Pupils' Physical Society is a direct descendant of the older Physical Society founded in 1771, which was one of London's oldest Medical Societies. The minute books of the Society are preserved in the Wills Library, and, thanks to a recent discovery of some missing volumes, the records are practically complete right back to this early date. The older organisation ceased to exist in 1852, partly owing to the competition of the Medical and Chirurgical Society—now the Royal Society of Medicine—which was founded in 1805.

The Pupils' Physical Society was originally started in 1830 as a purely Students' Society for the discussion of subjects of medical and surgical importance, for the showing of interesting cases, and for the reading of papers. The functions of the Society are the same to-day as they were a century ago, and it cannot be too strongly emphasised that it is essentially a students' organisation. Its members are the members of the Clubs' Union. It is managed by a committee consisting of not more than 16 Presidents, elected by the Society from among the senior students and house officers, and the two Honorary Secretaries.

The meetings are held, as far as possible, on alternate Thursday evenings during the winter months. The programme for the coming session, 1931-1932, is herewith presented, and it is hoped that the newer students will study it and reserve these dates. No meeting can be singled out as being more interesting than the others. The clinical and pathological meetings give opportunity for showing cases and specimens that otherwise might be missed, and it is no exaggeration to say that the best cases in the Hospital are to be seen collected together on these occasions only.

The combined meetings with the Medical and Physical Society of St. Thomas's Hospital, and with our own Physiological Society are always well attended, and the discussions that follow these meetings are amusing and stimulating. The papers that are read before the Society represent the outcome of much personal study, and should never be missed.

All members of the Clubs' Union are invited to take a personal share in the activities of the Society during the coming season, which promises to equal, if not surpass, all previous years.

1931. *Programme*, 1931-1932.

Thurs., Oct. 1 — 8 p.m. Opening Meeting. Paper by Sir William Arbuthnot Lane. "Results of Occupation upon the Skeleton." Chairman: Dr. Fawcett.

Thurs., Oct. 15 — 8 p.m. Clinical and Pathological Meeting. Chairman: Mr. Bradbeer.

Thurs., Oct. 29 — 8 p.m. Paper by Mr. Brock. "Experiences in America." Chairman: Mr. Batchelor.

Thurs., Nov. 12 — 8 p.m. At St. Thomas's Hospital. Joint Meeting with Medical and Physical Society of St. Thomas's Hospital. Chairman: Mr. Clarke.

Thurs., Nov. 26 — 8 p.m. Clinical and Pathological Meeting. Chairman: Mr. Colbeck.

Thurs., Dec. 10 — 8 p.m. Paper by Mr. Colbeck. "Hæmorrhagic Tendency in Diseases of Liver." Chairman: Mr. Ferguson.

1932.

Thurs., Jan. 14 — 8 p.m. Paper by Dr. Letheby Tidy. "Acute Hæmorrhagic Nephritis." Chairman: Mr. James.

Thurs., Jan. 28 — 8 p.m. Joint Meeting with Guy's Hospital Physiological Society. Subject to be arranged. Chairman: Mr. Lashmore.

Thurs., Feb. 11 — 8 p.m. Clinical and Pathological Meeting. Chairman: Mr. Erskine.

Thurs., Feb. 25 — 8 p.m. At Guy's Hospital. Joint Meeting with Medical and Physical Society of St. Thomas's Hospital. Chairman: Mr. Plummer.

Thurs., Mar. 10 — 8 p.m. Clinical and Pathological Meeting. Chairman: Mr. Ratcliffe.

Thurs., Mar. 24 — 8 p.m. Paper by Mr. Grace. "Uræmia." Chairman: Mr. Rosenburg.

Thurs., April 7 — 8 p.m. Clinical and Pathological Meeting. Chairman: Mr. Simpson.

Thurs., April 21 — 8 p.m. Reading of Treasurer's Prize Essay. The Subject will be "The Extra-Dental Results of Dental Sepsis." Chairman: Mr. Schofield.

THE SOCIETY'S PRIZES

In addition to the Treasurer's Prize, the following prizes are awarded by the Society:—

The Beddard Prize; to the member who most distinguishes himself in the demonstration of clinical cases.

The Laidlaw Prize; to the member who shows specimens, or reads a paper, of the greatest pathological interest.

A prize of £10 for the best paper read before the Society during the Session.

A prize of £5 to the member who most distinguishes himself in the discussions.

The Physiological Society

THE Physiological Society is an institution which is not of the Clubs' Union, but is one of the live concerns at the Hospital.

The Society was founded by Professor Pembrey, who is still President, and is the oldest students' physiological society in the world. It meets in the Experimental Laboratory for tea at 4.15 on a week-day, roughly once a fortnight during the autumn and winter. After tea and Rabelaisian conversation a member of the Society reads a paper in the Physiological Theatre. The paper, which must be the original, unaided work of the member, is of physiological interest and entirely uncensored. Religious and political subjects are avoided, and the reading is limited to half an hour. The chairman then comments on the paper and declares it open for discussion.

The papers are of great value, in that subjects out of the curriculum, but of supreme interest to the doctor, are discussed. "Birth Control," "Alcohol and Tobacco," and so forth; these are of importance when, in later life, one's opinion is requested. At the meetings of the Society one learns to state fearlessly one's views, for our guiding principle is vigorous defence of a statement. No one is exempt from criticism; be he tutor or first-year man, he is an enemy to be ruthlessly trounced in argument. Physiology is not a text-book subject, but a living philosophy to be formed by full-blooded debate. At the Society's meetings are laid the foundations of interest in current discoveries and ideas. It is supremely important that the student should join early and attend every meeting—he will pick up more knowledge in an hour of spirited argument than in days of heavy reading.

GAVIN THURSTON,
Hon. Sec.

Guy's Dental Society

President.—G. B. Pritchard, Esq., L.R.C.P., M.R.C.S., L.D.S.

Vice-Presidents.—E. B. Dowsett, Esq., D.S.O., L.R.C.P., M.R.C.S., L.D.S.; H. C. Malleson, Esq., L.R.C.P., M.R.C.S., L.D.S.; F. J. Pearce, Esq., L.D.S., D.D.S.; E. A. Lloyd, Esq., L.D.S.; F. S. Warner, Esq., L.R.C.P., M.R.C.S., L.D.S.

Hon. Treasurer.—G. G. Hardie.

Secretary.—E. Matthews.

Dental Correspondent.—C. R. Stone.

Past Hon. Secretary.—E. V. B. Widdowson.

Committee.—First year (not yet elected); Second year, J. A. Starne; Third year, H. A. Stanger; Fourth year, C. C. R. Mailer; Any year, C. G. Nevard.

THE Society was founded in 1895, from which time its activities have increased enormously, and it now forms an important part of the student life of the Hospital.

The meetings of the Society are always well attended, the President taking the chair.

Most papers read to the Society are by students and concern the various important subjects in the practice of Dental Surgery. Occasionally, well-known members of the profession also read papers of special interest.

All members have a chance of taking part in the debate which takes place after the reading of the papers, when they may either express their appreciation or criticism.

The papers read during the year 1930-31 were:—

(1) "Amalgam Crowns and Synthetic-Faced Amalgams," by J. Bunyan, Esq., L.D.S.

(2) "Some Points in General Anæsthesia for Dental Operations," by R. Jarman, Esq.

(3) "The Suitability of Sodium Ricinoleate for the Treatment of Acute Gingivitis," by W. J. Wheatley, Esq., L.D.S.

(4) "Electrical Aids to Dental Surgery," by F. Clare, Esq.

(5) "Pathology of Pyorrhœa Alveolaris," by G. B. Palmer, Esq., L.D.S.

(6) "Exodontia," by J. A. Carleton-Hunter, Esq., L.D.S.

(7) "The Art of the Denture," by D. S. Clogg, Esq., L.D.S.

The Casual Communication brought forward was:—

"A Case of Congenital Hypertrophy of the Gums," by S. C. Brown, Esq., L.D.S.

The Annual Dinner last year was held at the "Trocadero," where the many distinguished guests and members totalled 295. The Dinner for the coming season will be announced in due course. The first meeting of the year will be announced later, when Mr. Pritchard will address the new members and some member will read a paper.

The members of the Society take pleasure in welcoming all new members to the Hospital, and we look forward to seeing many new faces at the opening meeting of the Society.

(If any paper or casual communication has been left out it is because at the moment of writing the Minute Book of the Society has been mislaid, and the papers entered are from memory.)

C. R. S.

Guy's Hospital Chapel

THE Chapel at Guy's certainly does not thrust itself ostentatiously upon the notice of the newcomer, but it exists nevertheless. Those who boldly open the door under the clock in the front square will find it. It is embedded in Matron's House, which flanks it on either side and covers the roof as well. It is square, without an apse, and with galleries round three sides, being technically described, we believe, as a "drawing-room Chapel of the Georgian Period." An impression of a sort of apse, indeed, has been artificially and undesignedly created by the erection of an organ in one corner and a vestry in the other. This has the disadvantage of partially obscuring the design of the Colonnade, which was clearly intended to be a feature of the building. It is possible that these encroachments will be removed in the execution of a scheme of redecoration and improvement which is afoot. The stained glass windows commemorate William Hunt, the founder of the Medical Wards. The mosaics and panels are a memorial to all those who have died in the Medical Service of the Hospital since 1867.

Various others are recalled by brasses in various parts of the Chapel and in the Lobby. The most interesting of these are those of W. E. Gladstone, a Governor for 63 years, Sir Astley Cooper and Sir William Gull. But the best known feature of our little Chapel is the really noteworthy monument to our Founder, Thomas Guy, which faces the altar. Here is Guy in Court dress of the period relieving a suffering man, while in the background

is to be seen an actual model of the Quadrangle and Colonnade Steps outside, with porters engaged in stretcher bearing. The inscription on the monument is well worth studying as a good example of the somewhat florid testimonials which characterised such literature in the eighteenth century, and as a record of certain facts apt to be forgotten.

An extensive crypt contains the Founder's tomb, for the remains of Thomas Guy were translated across the street from their original resting place beneath St. Thomas's, where they lay from 1725 to 1780. Among the other tombs in the crypt are those of William Hunt, Sir Astley Cooper and certain Governors, Surgeons and Physicians of bygone days. Of those who served the Chapel the greatest name is that of Frederick Denison Maurice, Chaplain 1836-46, portraits of whom will be found in the Lobby. A list of the services in the Chapel will also be found there, and the Chaplain is always glad to supply further information. Needless to say, the Chapel and its Services are always open to all members of the Hospital and Schools.

Officers Training Corps

By H. H. Kenshole, Esq., M.R.C.S., L.R.C.P.

SUNDAY, July 12th, found the Medical Unit, of which Guy's forms No. 2 Company, once more in camp at Shornecliffe, near Folkestone.

This year, during our fortnight's stay, we were not blessed with good weather, but the ardour of the troops was not damped. It so happens that rain interferes but little with the work of the Unit, consisting, as it does, largely of lectures upon First Aid and Bandaging, Map-Reading, Military Sanitation and Hygiene, and Disposal of Sick and Wounded, etc., which can be carried on equally well in the confines of a large tent, though, perhaps, not quite so pleasantly as in the open air.

The usual training was performed, including small doses of squad and stretcher drill, and larger draughts of field work with horsed transport and motor ambulances. It is surprising to find how frequently the most convenient sites for dressing stations appear to be close to, or actually in, the cellars of country inns, particularly if the selection of the sites is left to the discretion of the Cadets themselves.

By kind permission of the officer commanding the Military Hospital, Shornecliffe, parties were shown daily the mysteries and marvels of a well-appointed R.A.M.C. establishment. On Monday, July 20th, the high spot was reached when the Chief of Imperial General Staff, Field Marshal Sir George Milne, surrounded by a bevy of beautiful (but very pleasant) Brass Hats, inspected the whole contingent in review order, consisting of artillery, sound-ranging, engineer, infantry and medical units, complete with guns, motor ambulances and transport.

On the following day the medical unit was inspected at work by the Deputy Director-General of Medical Services, Major-General Blackwell, whose report, recently to hand, is extremely gratifying and reflects credit upon all members of the unit.

From all this it would appear that quite an amount of work is done, yet the authorities always bear in mind that Annual Camp is probably the only holiday for most Medical students, and accordingly a great deal of time is left free for enjoyment and pleasure. All work ceases promptly at 4.0 p.m., and everyone is then free till Rouse Parade on the following morning. Folkestone, as usual, was lively and the centre of many attractions.

An innovation this year was the appearance in the big canteen one evening of a concert party, which drew an audience of about 800 men. It was a most successful affair, especially when a fair artiste sang, "Hast thou heard the cuckoo?" when most of the 800 indicated that undoubtedly they had, and showed they could imitate that bird fairly accurately, much to the embarrassment of the singer.

Altogether it was a most enjoyable holiday, and all entirely free. At the present time it is doubtful whether there will be any Camp next year in view of the necessity of National Economy, but that remains to be seen. In the meantime, if anyone is interested in the Unit and would like to join us, he will be gladly supplied with further details by Mr. B. G. Scholefield, of the Surgical side, Mr. N. L. Barber, or Mr. Kenshole, in the Dental Department.

Correspondence

Students' Letters

To the Editor of the GAZETTE

SIR,—With your kind permission I use the valuable space of the *Gazette* to express dissatisfaction at the way in which students' letters have to be called for in the front lodge.

It must have long been seen that this archaic method of rapping with one's knuckles on the glass pane for one's correspondence would, sooner or later, lead to confusion and difficulty, as has been witnessed during the last week or two. The amount of letters became so large that the overflow found its way into the Medical School Office.

Quite rightly, the Office of the Dean may, perhaps, assert that no student should use the Hospital as a private address; but when one considers the large numbers of students from overseas and in the distant parts of the British Isles, who lead (through no fault of their own) a somewhat nomadic existence in London, the Hospital offers, as is seen, the only permanent address.

May I suggest that this "window-gazing" be abolished and a more methodical way of dealing with the students' correspondence be established? Two hundred, or more if necessary, wooden boxes could be substituted, and the students who used the Hospital as an address could pay a small annual fee of, say, half-a-crown or three shillings for the possession of a key and the use of a box.

Apart from the fact that this would be a minor source of revenue, I am certain it would relieve the accumulation of uncalled-for letters and do away with letters from the Dean's Office going astray, and provide a private mausoleum for personal bills.

Yours, etc.,

JOHN MEDICUS.

Guy's Hospital,
S.E.1.

Sport

Rugby

Guy's v. Catford Bridge

FOLLOWING their usual custom, the Hospital opened their season with a home fixture on Saturday, September 19th, against Catford Bridge, and were successful by a placed goal, a penalty goal and a try (11 points) to nil.

Additional interest was added to this match by the fact that the previous week Catford had defeated Bedford away from home, and that their side included two former Guy's students in J. G. van Schalkwijk and E. W. Hutchinson. The former, although not so fast as when he assisted Guy's, proved that he was a great force, and his judicious kicking was a valuable asset to his side.

Inclement weather had prevented the Hospital from holding more than one trial, and, as a result, they took a long time to settle down, and it was not until the second half that they produced anything like the form of the latter part of last season.

With the exception of P. C. Alexander, who came in at left centre, Guy's relied upon the side which represented the Hospital last year, but, owing to various causes, Johnson, Giesen, Morgan and Popplewell were unable to turn out.

The ground looked in remarkably good condition and is undoubtedly due to the recent improvements which have been carried out by the Clubs' Union. Catford kicked off in perfect weather and a well-judged kick by Van Schalkwijk enabled Catford to gain a footing in our 25. A nice round of passing between their threes looked promising until Alexander intercepted and cleared. For a time the visitors held the upper hand, but several opportunities were thrown away through the inability of their backs to press home the advantage.

Catford had a much heavier pack and practically dominated the scrums; however, when Guy's did get the ball, it came out too slow to be of much service to the backs. However, on one occasion Windsor Lewis created an opening for Alexander, who cut through beautifully, before passing to Ashdown. The latter made a good run along the wing, but was tackled by the full-back a yard or two from the line. Catford retaliated with a sparkling run by the brothers Meikle, but Wailer made a fine tackle and found touch near midfield.

Soon after, Catford had a splendid chance of scoring when, following a scrum in front of our posts, Monroe, with time to spare, made a poor attempt to drop a goal.

Before half-time both sides were awarded penalty kicks for offside, but in each instance the kick failed and the teams crossed over on level terms.

After the interval Guy's played much better, and from the kick-off the Hospital, led by their captain, followed up very quickly and caught the full-back in possession only five yards from the line. Catford were penalised, but from a very difficult position Hogbin just failed with the kick.

By good passing movements, Guy's kept up the pressure, but eventually the visitors again attacked through clever kicking by Van Schalkwijk, who found touch near our corner flag. The Hospital experienced one or two anxious moments when several scrums were formed in our line, and it was not until Windsor Lewis relieved the situation with a splendid kick to midfield that Guy's got a real hold of the game.

A good bout of passing between Alexander, Thomas and Ashdown carried play to Catford's 25, and a minute later the Hospital took the lead as the result of an excellent penalty goal, which was kicked by Hogbin, from near the touch line.

After this, Guy's did most of the attacking, and a fine bout of passing between Thomas and Alexander gave Burrows a good chance to score, but hesitation in front of the full-back enabled Catford to check the advance. However, from a scrum in the visitors' 25 Eustace got the ball smartly away to Thomas, and the latter sent in Ashdown for a try, which Hogbin converted.

A brief excursion by Catford to our 25 saw Roeber very prominent on two or three occasions, and it was only first-class tackling which kept him out.

Towards the end Alexander and Batchelor were nearly through for Guy's, but a knock-on spoilt the movement. This was followed by a brilliant round of passing between Lewis, Thomas and Alexander, which ended in the latter sending in Ashdown for a good try behind the posts. Unfortunately, Hogbin hit the uprights in trying to add the extra goal points.

Team.—L. Wailer; D. E. Ashdown, I. K. Thomas, P. C. Alexander, G. A. Burrows; Windsor H. Lewis (Capt.), R. J. Eustace; J. S. Batchelor, J. P. O'Shea, R. J. Drummond, J. Cunard, I. G. Robin, R. A. P. Hogbin, A. R. Clarke, J. A. T. Rowlett.

Guy's v. Plymouth Albion

AT Honor Oak Park on Saturday, September 26th, Guy's put up a remarkably fine performance, when they defeated Plymouth by a placed goal and a dropped goal (9 points) to a penalty goal and a try (6 points).

Their success was all the more meritorious as after five minutes' play the Hospital lost the assistance of P. C. Alexander, who had to leave the field with a torn leg muscle. As a result of this mishap Guy's had to reorganise their back division by moving Atkins from the left wing to right centre, and pulling out Clarke from the pack to the left wing.

This was a blow to the Hospital, as the Plymouth men possessed a much heavier pack and, with two internationals in their front line, Guy's could ill afford to lose anybody from the scrum. However, the whole team rose to the occasion splendidly, and more than held their own for the rest of the game.

Windsor Lewis was in his very best form and set a fine example to the rest of his side—not only did he take a hand in every movement initiated by the Guy's backs, but his kicking and tackling was faultless.

J. S. Batchelor led the forwards magnificently, and, although they did not get the ball so often in the set scrums, they were complete masters in the loose. Luckily, both Giesen and Morgan were able to turn out for Guy's, and both took a great part in the Hospital's victory.

No sooner had Alexander retired, than Guy's were penalised for offside, and Sparks kicked a grand goal from a wide angle. This reverse roused the Guy's side, and from then onwards each member of the team played brilliantly, and nobody did better than A. R. Clarke, whose tackling on the left wing was splendid.

Although there was no further scoring before half-time, Guy's made repeated efforts to open up the game, and on several occasions came within an ace of scoring. On the other hand, had the Plymouth backs taken advantage of the numerous passes which were sent out by their international scrum-half, the result might easily have gone the other way. As it was, the first half was evenly contested, with Guy's slightly the better side, and a ding-dong struggle followed.

Five minutes after the interval Windsor Lewis intercepted near midfield and, after running to the visitors' 25, created a fine opening for Hogbin, who had backed up cleverly and, after shaking off a tackle, hurled himself over the line for a splendid try, which he also converted.

This success roused the spectators to great enthusiasm and the excitement grew intense as Plymouth pressed their way to the Guy's line and, for a time, stayed there. It was only superb tackling on the part of our defence which kept the visitors out, and it was Windsor Lewis who finally drove them back with a great kick to touch.

Prior to this, Guy's were rather lucky to escape having their line crossed when Richards kicked across the field, and one of the Guy's backs, in attempting to make a mark, knocked on. The

Plymouth backs were on the ball in a flash, but the referee had already blown his whistle for a "mark," and, as a result, a scrum was formed from which Lewis cleared.

A quarter of an hour from time, after Guy's had made an attack on the Plymouth line, the ball came out to Windsor Lewis, and with a first time shot dropped a clever goal from 30 yards' range.

The men from Plymouth then set about reducing the lead, and after an excellent run by Richards, Gormley ran round the posts for a well-deserved try, but Sparks missed an easy chance to convert.

In the concluding stages a perfect round of passing between Lewis, Giesen and Ashdown saw the latter cross the visitors' line, but the referee declined to allow a try as the right wing had failed to ground the ball, according to the rules of Rugby.

It was a glorious game, full of excitement from beginning to end, and if Guy's can only maintain the form and team spirit shown in this match they have very little to worry about.

Team.—L. Wailer; D. E. Ashdown, J. E. Giesen, P. C. Alexander, H. J. B. Atkins, Windsor H. Lewis (Capt.), R. J. Eustace; J. S. Batchelor, J. Cunard, J. P. O'Shea, R. J. Drummond, I. G. Robin, R. A. P. Hogbin, A. R. Clarke, T. Morgan.

Entry of Students, October, 1931

Medical

Name	*Year*	*School or College*
Barrett, A. J.	1st M.B.	King's School, Canterbury.
Bartlett, J. H.	4th Year	University College, Oxford.
Bhanji, R. H.	1st M.B.	Dulwich College.
Bookless, A. S.	4th Year	Clare College, Cambridge.
Borland, K.	1st M.B.	Mill Hill School.
Boucher, C. A.	4th Year	Worcester College, Oxford.
Brown, C. N.	1st M.B.	Bishop's Stortford College.
Campbell, A. M. G.	4th Year	St. John's College, Oxford.
Coe, R. P. K.	1st M.B.	Nottingham High School.
Cooper, L. H.	1st M.B.	Caterham School.
Corker, R. M.	1st M.B.	Tonbridge School.
Creighton, N. C.	1st M.B.	Bishop's Stortford College.
Darke, C. S.	2nd Year	Mill Hill School.
Davies, H. V.	1st M.B.	Dean Close School, Cheltenham.
Davies, P. M.	1st M.B.	Haberdasher's Aske's Hampstead School.
de Gregory, R. M.	Pre-medical	Ellesmere College, Shropshire.
Dickinson, J. R.	4th Year	Clare College, Cambridge.
Drosso, V...	2nd Year	Highgate School.
Ebsworth, J. D.	1st M.B.	Grammar School, Carmarthen.
Eddy, T. S.	4th Year	University of Cape Town.
Evans, F. I.	4th Year	St. Catharine's College, Cambridge.
Gillett, E.	1st Year	Chorley Grammar School.
Goonchorn, S. G.	1st M.B.	Imperial Service College, Windsor.
Griffiths, J. A. T.	1st Year	Giggleswick School.
Gross, D. D.	Pre-medical	Kilburn Grammar School.
Hamilton, H. A.	4th Year	Caius College, Cambridge.
Hill, A. G. W.	1st Year	St. Lawrence College, Ramsgate.
Holford, H. J.	1st M.B.	Dulwich College.
Humphreys, G. L.	2nd Year	St. Paul's School.
Kimelberg, C. L.	1st M.B.	Highbury County School.
Landon, C. G.	3rd Year	Clare College, Cambridge.
Larkins, F. V. S.	1st M.B.	Cheltenham College.
Leask, A. R.	1st M.B.	Highgate School.
Lewis, T. G. H.	1st M.B.	St. Edward's School, Oxford.

Medical—*continued.*

Name	*Year*	*School or College*
Light, D. C.	1st M.B.	Dulwich College.
McDonald, R.	4th Year	Magdalen College, Oxford.
McEvoy, N. R.	1st M.B.	Balham Grammar School.
Miles, J. R.	1st M.B.	Dulwich College.
Milne, A. D.	1st M.B.	Westminster School.
Milne, G. D. N.	1st M.B.	Westminster School.
Pantin, C. G.	4th Year	Christ's College, Cambridge.
Pascall, K. G.	1st M.B.	Dulwich College.
Perkins, J. D. B.	1st M.B.	Weymouth College.
Philip, W. M.	2nd Year	Epsom College.
Pitt-Payne, F. E.	2nd Year	Epsom College.
Russell, J. A.	3rd Year	Edinburgh University.
Rutherford, E. G.	1st M.B.	Brighton College.
Spink, M. S.	4th Year	St. Catharine's College, Cambridge.
Stevenson, R. W.	2nd Year	St. Paul's School.
Stewart, C. W.	1st M.B.	Dulwich College.
Stott, H	1st M.B.	Cheltenham College.
Thompson, E. F. B.	1st M.B.	Alleyn's School.
Thomson, L. C.	1st M.B.	Sherbourne School.
Tobin, J.	1st M.B.	West Ham Municipal Secondary School.
Turnbull, T. A.	1st Year	County School, Gillingham.
Willis, A. D.	1st M.B.	Charterhouse.
Wilson, D. S.	1st M.B.	Merchant Taylors' School.
Woodland, F. A. J.	Pre-medical	Loughton School, Essex.
Yardley, G. E.	1st M.B.	St. John's College, Cambridge.

Dental

Name	*Year*	*School or College*
Archer, R. G.	Pre-medical	Felsted School.
Bennett, S. B.	Pre-medical	Cheltenham College.
Bellsham-Revell, L. C.	1st Year	—
Black, A.	1st B.D.S.	Epsom College.
Blay, N. A.	1st Year	Trinity County School, Wood Green.
Brown, G. M. A.	Pre-medical	Magdalen College, Brackley, Northants.
Coltman, C. E.	1st Year	Caterham School.
Cooper, E. H.	1st B.D.S.	Rotherham Grammar School.
Cooper, W. F.	1st Year	Felsted School.
Corfe, R. J. H.	1st Year	St. Lawrence College, Ramsgate.
Crabb, H. H.	Pre-medical	Kingswood School, Bath.
Crampton, P. H.	1st B.D.S.	Haberdashers' Aske's Hampstead School.
Deuchar, J. L.	1st Year	Varndean School, Brighton.
Farro, S.	Pre-medical	The Polytechnic, Regent Street.
Forrest, W. I. N.	Pre-medical	Christ's Hospital.
Forrester, N. L.	1st Year	County Grammar School, Wolstanton.
Fox, D. P.	1st Year	The Grammar School, Great Yarmouth.
French, H. C.	2nd Year	Hilton College, Natal.
*Gascoine, M. E.	1st Year	Caterham School.
Goodridge, D. L.	Pre-medical	Charterhouse.
Hammond, E. C.	1st Year	Whitgift Grammar School.

Dental—*continued.*

Name	*Year*	*School or College*
Hawkins, N. A.	1st Year	West Buckland School, Barnstaple.
Hollington, J. L.	Pre-medical	Imperial Service College, Windsor.
Howgate, R.	Pre-medical	Wallington County School.
Ibbetson, D. A.	1st Year	Lancing College.
*Ingram, F. L.	1st Year	Tiffin's School, Kingston-on-Thames.
Keay, J. C.	1st Year	Wintringham Secondary School, Grimsby
Keith, K. A.	1st Year	City of London School.
Kenyon, R. L.	1st B.D.S.	St. George's School, Harpenden.
Kett, R. G.	1st Year	Eastbourne College.
*Macfarlane, D. W.	1st Year	Pannal Ash College, Harrogate.
Morgan, W. J. R. C.	Pre-medical	Swansea Grammar School.
*Parfitt, R. F.	1st Year	Cranleigh School.
Pearce, R. H. J.	Pre-medical	Aldershot County High School.
Peatfield, R. V.	1st Year	Cranleigh School.
Pett, R. D.	Pre-medical	Brighton College.
Pook, R. S.	Pre-medical	Royal Grammar School, Guildford.
Priestley, D. A.	1st B.D.S.	Elizabeth College, Guernsey.
Rees, G. G. G.	Pre-medical	Swansea Municipal Secondary School.
Rees, G. J. F.	Pre-medical	St. Paul's School.
*Sams, V. S.	1st Year	St. Edward's School, Oxford.
Scott, P. G.	Pre-medical	Brighton College.
Sedgwick, D. G.	Pre-medical	Eastbourne College.
Sheffield, S. G.	Pre-medical	Prior Park College, Bath.
Siggers, N. A.	1st Year	Wilson's Grammar School.
Siggers, R. G.	Pre-medical	Chatham House School, Ramsgate.
Smith, A. G.	2nd Year	Humberstone School, Clee.
Steiner, W. A.	1st Year	County High School, Ilford.
Sutton, E. L.	Pre-medical	Ardingly College.
Toulson, D. K.	1st Year	Isleworth County School.
Vale, W. A.	1st B.D.S.	Derby School.

* Also Medical.

Hospital Information, etc.

Papers by Guy's Men

W. A. Mill and J. R. F. Popplewell. Case of mastoid infection by clostridium septique complicated by thrombosis of cavernous sinuses. *Jour. Laryng. and Otol.*, 1931, xlvi, 618.

G. F. Gibberd. Albuminuria complicating pregnancy. *Lancet*, 1931, ii, 520, 576.

J. V. C. Braithwaite and W. M. Innes. Epidemic meningitis minor. *B.M.J.*, 1931, ii, 567.

G. B. Pritchard. Specimen showing "pink spot." *Proc. R.S.M.*, xxiv, 1931, 1600.

G. Rake. Epithelioma of œsophagus in association with achalasia of cardia. *Lancet*, 1931, ii, 682.

C. Worster-Drought and W. E. Dickson. Medullablastoma (?). *Proc. R.S.M.*, xxiv, 1931, 1463.

——and C. R. G. Wakeley. Cerebello-pontine angle tumour. *Proc. R.S.M.*, xxiv, 1931, 1466.

Change of Address

H. F. J. Willis, L.D.S., R.C.S. (Eng.), 6, Marlpit Lane, Coulsdon.

Birth

NICOLAI.—On September 18th, 1931, at 87, Gipsy Hill, Upper Norwood, to Mary, wife of F. A. Nicolai —a son.

Marriages

WILLIS—WESTLEY.—On August 8th, 1931, at Dulwich, H. F. J. Willis, L.D.S., R.C.S. (Eng.), to Nancy, only daughter of Mr. and Mrs. Westley.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

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PASSIM

LAST Saturday was undoubtedly a very important day in the history of the Hospital, for it saw the commencement of the great move into the new Out-Patient Department. Surgical Out-Patients were held for the first time in the new building. This occasion afforded us the opportunity to make a comprehensive survey of the new departments. Until then the fear of incurring the dire penalty that a serious view by the House Committee suggested had deterred us from making any but the most transitory and furtive exploratory journeys into the realms of this most recent and notable addition to the Hospital. At last, however, we were free to roam at leisure through this imposing edifice.

Our first and lasting impression was of the many improvements that had been incorporated in the new structure. These were most noticeable on the surgical floor. Here the room for cases requiring local anæsthetics will play a great part in speeding up the bi-weekly performance of minor operations. No less appreciated by the patients will be the greater number of dressing-rooms and the increased accommodation for those recovering from the effects of general anæsthesia.

As we wandered through the spacious rooms of the basement, and more particularly when we came to those in close proximity to the new lift, we could not refrain from hoping that one of these apartments might take the place of the present plaster basement. This would obviate those difficult and hazardous journeys that at present so frequently have to be negotiated down and up a steep and narrow staircase, with patients suffering from such a condition as a Potts' fracture.

Eventually we reached the roof. Nor, indeed, is this the least valuable portion of the building, affording, as it does, a large area from which, on those occasions when Nature so ordains, the true solar rays can be substituted for their prototypes obtainable at a lower level. At the present time, in unofficial circles there are many and varied speculations as to the future of this elevated site. Some have it that a room for the Pre-Clinicals is to be built thereon, whereas others are equally certain that eventually a miniature putting course will be constructed. However, the fact that the list has been extended as high as this level would seem to indicate that the authorities have no intention of allowing this space to remain idle.

The benefits derived from this new building will be experienced by all those who are connected with the Out-Patient Department. Thus the present Medical Out-Patients will give place to the enlargement of the X-ray Department, while itself finding a more commodious home on the site of the recent Surgical Out-Patients and Back Surgery. The last-named is, we understand, to have more airy quarters on the other side of the Out-Patients' Hall. It is unnecessary to emphasise what welcome and much-needed improvements the above-mentioned alterations will afford. Suffice it to say that the addition of this new building marks a very great advance in the welfare of those attending the Hospital.

▭

WE should like to take this opportunity of expressing our appreciation of the very great loss the Hospital has sustained in the retirement of Mr. Ormond from his position as Ophthalmic Surgeon—one which he has occupied for the last twenty years. In his new sphere as Consulting Ophthalmic Surgeon Mr. Ormond will carry with him the good wishes of all who came into contact with him at Guy's. We trust that he will find time frequently to re-visit the Hospital.

▭

WE have a pleasant task in congratulating Mr. Windsor Lewis on his selection to the London

team which is to meet the Springboks on Saturday, 17th inst., at Twickenham. We would also like to remark on the promising start to the season made by the 1st XV. It is some time since we have won the first four matches against sides which include first-class club teams, and we hope that this is the prelude to a really successful season.

WE would like to correct a mistake which occurred in the Dental Curriculum of the last issue of the *Gazette*, concerning the address of the Dental Manufacturing Company. Their head offices are now situated at Brock House, Great Portland Street, W.1, and we omitted to mention that they have opened a depot at 2, Maze Pond for the convenience of students.

Obituary

OCTAVIUS EDWARD BULWER MARSH, L.R.C.P.Edin., L.M., M.R.C.S.Eng.

DR. MARSH, who died recently at Raglan, at the age of 78, was for nearly half a century one of the leading medical men of Newport. Following his training at Bristol Medical School and Guy's, he took the degree of M.R.C.S. (Eng.) in 1875, and became L.R.C.P. and L.M. (Edin.) in the following year. Despite a crowded professional life, he took an active part in municipal work, and had been President of the South Wales and Monmouthshire branch of the British Medical Association and also of the Newport Medical Society. His death will be mourned by a large circle of friends, and his loss keenly felt in the many phases of life in which he took an active part.

FRANK WILLIAM BRADLEY, M.R.C.S., L.R.C.P., D.P.H,

WE have to announce the death of Frank William Bradley, who, at the early age of 27, died recently following an operation for appendicitis. At the completion of his student days at Guy's he held, amongst other appointments, that of Obstetric Resident. The news of his death came as a great shock to his relatives and friends and to his colleagues, who had predicted for him a brilliant future.

Results of Occupation Upon the Skeleton

A Paper read before Guy's Hospital Physical Society, by Sir Arbuthnot Lane, 1st October, 1931

MR. CHAIRMAN and GENTLEMEN,—My object in addressing you is to stress the supreme part taken by mechanics in the causation of disease. To do this I must recount work done during a long period of service done in Guy's Hospital, the success of which was due in great part to the invaluable sympathy, assistance, intelligence and skill of those men with whom I had been associated either in the dissecting-room or wards of the Hospital. To them I owe a very great debt of gratitude, and I look back to the years spent with them with the greatest joy and satisfaction.

My first interest in mechanics started when I was demonstrator of anatomy. At that time the supply of bodies was abundant. I had, therefore, much material for research. What struck one was the frequency of fractures which escaped recognition; also the remarkably unsatisfactory result of treatment. While the teaching of that day was that for the proper treatment of a broken bone it was essential that the fragments should be placed in accurate apposition, that was practically never done in the case of spinal fractures produced by indirect violence, and but rarely in the case of those produced by direct violence.

As regards unrecognised fractures a number of instances of fractures of the hyoid bone and cartilages of the larynx shown at the Pathological Society evoked an angry discussion, and Sir Felix Semon, then Mr. Semon, insisted on a committee to investigate. The result of the investigation fully bore out my statements. The study of the numerous fractures led me to formulate the following law, viz., that the skeleton represents the crystallisation of forces and that any alteration in the form of a portion by fracture resulted in an attempt to restore the bone to its original form by a process of crystallisation. This process took place with the greatest activity in the first few weeks of life. In the case of fracture of a long bone as the femur in child-birth, in which

the fragments overlapped, within a very short period of time a new shaft was developed, the length of which corresponded to the overlap, the form and outline of the old shaft having completely disappeared.

I cannot impress on you too strongly the extreme rapidity of the changes which take place in the body in the first few weeks of life. As life goes on the process of crystallisation becomes more and more limited to the seat of fracture, where it is described as callus, but even in advanced life it is possible to recognise this effort of crystallisation to re-establish the form of the bone. One was very much surprised by the frequency of changes in the skeleton which were regarded by the pathologists and anatomists as instances of a disease called rheumatoid or osteo-arthritis, tubercle or congenital abnormalities.

After a careful investigation of the several skeletons, no portions of which left the dissecting-room without being thoroughly examined, I was able to formulate the following laws :—

1. Pressure exerted habitually over a period of years results in an alteration in the form and texture of bones, cartilages and joints, old joints being modified or destroyed and new ones being developed.

2. Strain exerted over a period of years produces similar changes in bones, cartilage and joints.

3. Apart from the exercise of pressure or strain, when it is to the advantage of the individual in his special relationship to surroundings, an old mechanism is altered or an entirely new one developed.

Every labourer acquired the fixation of attitudes of activity peculiar to his particular form of occupation, since each represented the fixation and, later, the exaggeration of all the tendencies to change when his attitude of activity was assumed on any single occasion.

In this way I was able to determine the labour history of the several bodies that I examined, and their changes are so clear and so definite that they can be demonstrated by the slides I will show later.

Now all the changes in the bodies of these labourers represented the fixation of attitudes of activity. The study of the fixation and exaggeration of attitudes of rest in such cases as those of flat-foot, knock-knee, bow-legs, lateral curvature, etc., enabled me to observe the functions of joints as illustrated by the attitudes of activity and of rest and to demonstrate the functions of joints much more clearly than has been done previously. Take one example : flexion of the hip joint was described at that time as being limited by the impact of the thigh against the abdomen, whereas I was able to show that it was limited by the impact of the front of the neck of the femur against the margin of the acetabulum. This fact alone threw a clear light on the causation of dislocation of the hip and fracture of its neck.

The study of the resting positions enabled me to formulate another law, viz., that the rate of bone-formation in the several portions of the growing line varies indirectly as the pressure transmitted through it.

The application of these laws to the bones of the face showed that the three factors determining their form are, first, the pressure exerted by air in its passage through the naso-pharynx ; secondly, the force exerted by the tongue in the development of the lower jaw ; thirdly, the force exerted by the teeth in occupying space and in the transmission of pressure through them. This led me to start breathing exercises to develop the face and to prevent, and often cure, adenoids, which were at that time being operated on indiscriminately. The opposition to breathing exercises by the laryngologists was very bitter, and the most eminent of these specialists attacked me in public, since it was considered absurd in his opinion that the passage of air could exercise any influence whatever.

However, breathing exercises were slowly but gradually recognised as efficient means of dealing with imperfect development and infections of the naso-pharynx, and are now in common use everywhere.

This knowledge led me to alter the treatment of cleft palate. At that time it was not considered correct to operate on these clefts till the child was four years old, so that during those four years the child was deprived of the beneficial action of those factors which determine the form of the face.

On the assumption that everything that is supposed to be undoubtedly true is usually wrong, I devised special instruments which enabled me to operate on the child at birth. This I did with complete success, and for many years I was engaged in operating on cleft palates, since the mothers were delighted to have their children treated at once, while the surgical profession, with its usual attitude of inactivity and opposition, left their cases to me for many years, till time gradually educated them.

The study of fractures convinced me of the hopeless state of their treatment. While it was taught that the fragments of a broken bone should be placed in accurate apposition, such was practically never done. To meet this I operated on simple fractures, restoring the fragments to their normal relationship and retaining them by means of steel plates and screws.

The indignation which this method aroused in the profession was intense, and even my colleagues who were most friendly to me urged me to discard a procedure which would not only ruin my reputation but would seriously damage the prestige of Guy's Hospital. There was much talk about putting me out of the profession for performing that heinous crime of converting a simple fracture into what was called a compound one. No student who presented himself for examination dared for a moment to mention such a proceeding without fear of immediate dismissal.

Thanks to the skill and care of my house-surgeons and dressers, we were able to perform innumerable operations without a single accident. While my surgical friends in England attacked me bitterly and furiously, surgeons from all parts of the world came to Guy's to learn the procedure, and I was asked to go to Berlin and to the States to demonstrate the methods we employed.

After years of opposition, at a meeting of a Congress in London my opponents insisted on a committee being appointed to investigate the truth of my statements, and for the first and, indeed, I think the only, time the British Medical Association provided the means for such an investigation and published the results of the investigation in a special form. The committee verified my facts in every particular, so that the method came slowly into general use.

As a result of these investigations into the changes which the skeleton undergoes I formulated the law that "We bear a simple mechanical relationship to our surroundings, any change in that relationship being followed by a corresponding change in our anatomy," with the corollary that "Anything that Nature does to meet the altered mechanical relationship to surroundings tends to shorten life."

I will give an illustration of the truth of this last statement, though innumerable instances are afforded by the short life of the men engaged in laborious pursuits. The coal-heaver, whose function it is to carry 2 cwt. of coal in a sack upon his back till he empties it into the hole in the pavement, undergoes many changes. The spine becomes a rigid rod, his costal cartilages ossify, and the joints of his ribs become fixed. Consequently, owing to the fixation of his spine and chest, he has to depend on his diaphragm and abdominal muscles for the aeration of his blood. On this account he readily succumbs to such a degree of pulmonary inflammation which one with a normal anatomy would readily survive.

Having demonstrated the truth of this law as regards the skeleton, I started to apply it to the soft parts of the body. Here I found it worked out as simply as in the case of the skeleton, but I found it much more difficult to demonstrate, since it did not lend itself so readily to photography.

To my surprise, it led me far beyond my expectations, since it enabled me to demonstrate that changes which develop in the gastro-intestinal tract because of its altered function, or, in other words, because of its altered mechanical relationship to its surroundings, is the cause of all the diseases of civilisation.

Looking at the gastro-intestinal tract one was struck by its similarity to the drainage scheme of the house. The stomach corresponded to the pan of the closet, the duodenum to the syphon trap, the small intestine to the long drain leading from the syphon trap to the cesspool, and the colon to the cesspool.

When the plug of the closet is pulled material passes from the pan, through the syphon trap and cesspool, a corresponding amount of material being evacuated into the drain in the street. Any obstruction to the effluent from the cesspool is followed by an accumulation of material in the cesspool, then in the small drain, the syphon trap, and finally in the pan of the closet. If material capable of decomposition remains there gasses are evolved. In the stomach material is broken up and organisms destroyed by the action of the gastric juices. The products are driven from the stomach into the human syphon trap or duodenum, which exists so as to give its contents time to mix freely with the secretion of the pancreas and with the bile. From the duodenum material passes into the small intestine over rather a sharp bend, which in normal conditions presents no obstacle to its passage. The sterile contents of the small intestine afford nutrition to the several tissues of the body, the liver and other organs acting as convertors or eliminators of such products of digestion as would be harmful in the circulation.

After all nutritious material has been absorbed, the ileum evacuates its contents into the large bowel, along which in the healthy normal subject it is carried rapidly through the colon and, remaining for a short time in that portion of the large bowel in the left iliac fossa, is discharged as a porridge-like material. Such is the case in vigorous healthy native living a natural life in the open, an evacuation of the bowel following a meal from the earliest infancy. Such people living under these conditions live to a vigorous old age, and are quite free from all the diseases which may reasonably be called diseases of civilisation.

Realising that constipation, or in other words the excessive delay of the contents of the large bowel, exists normally in civilization, such mechanical

changes as must necessarily result prove an altered mechanical relationship of the colon to its surroundings. To my surprise, these changes followed on precisely the same lines as did those in the skeleton, their remarkable activity during the early weeks and months of life being even more obvious and rapid in their development. To obviate the distension of the iliac section of the colon by the products of several meals, membranes or bands of crystallisation were developed, which first secured the mesentery of this piece of bowel and then later attached the bowel itself. How these bands had escaped the observation of the anatomist and pathologist is very difficult to explain. As an example of that fact I would mention that Sir James Goodhart, a pathologist of the greatest repute, was present at an abdominal operation. During the process I turned up the iliac colon and pointed out to him a well-developed acquired band. He was very much impressed, and said it must be an extraordinarily rare condition as he had never seen it in any of the vast number of post-mortems he had made at Guy's. Those who are familiar with the methods of examination of the intestines at post-mortem examinations will readily understand the ease with which such bands may escape notice. The immediate result of the anchoring of this segment of the colon is to prevent the free passage of fæcal matter through it. This accumulates in the colon proximal to it, and, loading it up, exerts a strain upon its attachments in the erect posture, in consequence of which lines of crystallisation, or, in other words, membranes develop which secure the bowel at the splenic and hepatic flexures. The commencement, the cæcum, is supported by a membrane on its outer aspect and on its inner aspect by a membrane which fixes the end of the ileum and frequently the appendix, these structures forming acquired internal lateral ligaments to this portion of the large bowel.

The small intestine, becoming overloaded with the accumulation of material dammed back in it, exerts a strain upon the junction of the duodenum and jejunum, and as the tube is a soft one, unlike the analogous condition in the drain of the house, the junction angulates, and the passage of material from the duodenum into the small intestine is obstructed, especially in the erect posture. This process I was able to observe, thanks to Dr. Jordan's help, and I called it the Writhing duodenum.

The obstruction to the duodenal effluent results in a dilatation, especially of its fi st piece, since material driven from the stomach cannot regurgitate into the stomach. Such distension is the source of the epigastric pain so commonly complained of in constipation. The prolongation of this distension results in an inflammation of the mucous lining, in hæmorrhage and, later, in ulceration.

This condition is met by the diminution of the pumping action of the stomach, associated with a pyloric spasm. For this reason cancer of the duodenum is of great rarity.

The stomach dilating its mucous membrane is exposed to the impact of its contents about the pylorus, while the mucous lining of the lesser curve suffers from strain. If a rubber bag, shaped like the stomach, is secured in a similar manner and it is overloaded, the material along the lesser curve tears, while the lower convex margin drops freely.

The impact upon the pyloric area and the strain along the lesser curvature are responsible for the changes in the mucous membrane varying from engorgement, hæmorrhage, ulceration and cancer.

So much for the simple mechanical changes that take place in this tract consequent on its altered mechanical relationship to its surroundings.

The obstruction afforded by the anchoring of the section of colon in the left iliac fossa results in irritation of its mucous lining, the setting up of a septic inflammatory process with the consequent spasm of the muscle coat. This last diminishes still further the lumen of this piece of bowel. The septic process extends back along the bowel producing a condition called colitis. As it extends it causes a progressive spasmodic contraction, and gradually causes material to collect in the cæcum. This accumulation in the cæcum produces discomfort and, later, pain in the right groin and is often the chief symptom complained of. The infective process readily extends into the appendix, and inflammation of this tube ensues, varying in intensity.

Sooner or later organisms extend from the cæcum into the dammed back material which is delayed and accumulates in the ileum. This was demonstrated very clearly by Dr. Mutch by means of cultures obtained from the small intestine at various levels during operations for the removal of the large bowel. The ascent of these organisms varied greatly, but in proportion as they invade and thrive in the food supply of the individual so there is absorbed into the circulation more organisms and toxins than the liver can deal with. Consequently, there is an overflow into the general circulation of toxic matter which is distributed to every cell in the body. The thyroid and other ductless glands become actively engaged in meeting this abnormal condition, but they sooner or later

undergo degenerative processes consequent on the excessive strain they have to meet.

Every organ and tissue supplied with poisonous blood undergoes degenerative processes, all of which we speak of as diseases.

Again the resisting power to their invasion by micro-organisms becomes diminished, and many diseases such as tubercle and rheumatoid arthritis and other changes, the result of the presence of these organisms in the tissues, develop. Finally, when the tissues of the body are so reduced in vitality, they form a soil in which the virus of cancer can develop and thrive.

When one first called attention to intestinal auto-intoxication and to the conditions which result from it, ridicule was heaped on it. As an example of the innumerable attacks made upon it I would quote an article written by that eminent pathologist and clinician, Professor Adami, as recently as January 24th, 1914, in the *British Medical Journal*.

He states: "To-day I wish to consider, not as a clinician, but as a pathologist, how far we may reasonably accompany Sir Arbuthnot and to what extent his doctrine is to be accepted; for honestly, at first sight, these seventeen symptoms and nine diseases, indirectly induced, seem to be in a horrible jumble." He then went on to accuse me of "that most dangerous, if not the last, infirmity of noble minds—obsession."

Dr. Adami was much too great a man not to be influenced by the evidence I supplied him with, so that, when convinced by it, he asked me how he could undo the harm his words had done to intestinal auto-intoxication, and he did this by writing an article entitled, "On Intestinal Stasis, Intoxication and Subinfection" for a book, "On the Operative Treatment of Chronic Intestinal Stasis," which I wrote. In that he accepts fully the views I put forward.

Few realise the vast amount of deleterious matter that is being absorbed daily from an infected small intestine. I would give only one illustration. In the congress in 1914, when there were collected in the wards and operating theatre of Guy's Hospital more distinguished surgeons than had ever come together before, there was demonstrated a number of toxic people for whom colectomy was performed. Among them was a young woman suffering from rheumatoid arthritis whose joints were so affected that she could not touch her face with her hand, which was stiff and useless. Within 24 hours of the removal of her colon she was able to write her name in the pocket books of those who had examined her carefully previous to operation.

One could produce innumerable similar examples of the effect of toxins on the tissues and their rapid disappearance when the supply of infected material was cut off.

Since it is impossible to illustrate this address I would refer to a little book "The Prevention of the Diseases of Civilization" which I wrote and in which are contained blocks showing the changes referred to here.

General Practice

A Lecture delivered by Dr. A. H Douthwaite, at Guy's Hospital, September 4th, 1931

PART I

GENTLEMEN,—Certain steps should invariably be taken on completion of qualification. The first is insurance against sickness, accident and death. Particularly is it important to be covered for illness, because disease is very apt to arise during house appointments held by a man who has exhausted his reserves of health in the effort for the Finals and has passed on to a post-graduate job without an intervening holiday. A further consideration is that a sickness policy with certain companies carries with it a loan value which enables one to purchase an otherwise unobtainable share in a practice. Life insurance is also highly desirable, a policy with a good company incorporating profit-sharing in its scheme will develop a very considerable loan value in a few years.

The second step is another form of insurance, namely, the taking of precautionary measures to frustrate the malevolence of one's fellow-creatures. In other words, subscription should be made to a society formed for the purpose of providing defence and, if necessary, damages in the event of action being brought against a doctor in a court of law. The cost is trivial, the sense of security great.

Thirdly, a decision should be made as to the nature and number of medical societies, associations and journals to which it is intended to subscribe. They should be chosen with an eye to the opportunity which they present for meeting fellow-practitioners, for using an up-to-date and efficiently managed library, and for reading sound medical literature.

CHOICE OF PRE- AND POST-GRADUATE APPOINTMENTS

If you are one of those who have no financial embarrassment, do all the jobs you can before and after qualification. If not, a choice must be made of those specialities which are encountered most frequently in general practice, and particularly those which are regarded by the laity as obviously part of the doctor's routine work. One must be influenced also by the degree of overlap of general medicine, or surgery, and the particular speciality in mind. For instance, genito-urinary diseases are constantly encountered in the medical and surgical wards, and it is unlikely, therefore, that the practitioner will feel hopelessly at sea if he be faced with a case of this category.

The study of orthopædics is similarly placed, and in both cases general training should render it feasible to form an opinion of the system at fault even if accurate diagnosis be denied one. In neither example will the patient feel justified in assuming incompetence if the aid of a specialist be advised.

That most difficult, time-absorbing and fascinating speciality, neurology, is a thing apart. Although on the face of it, it would appear to be desirable to study fully the diseases of the nervous system, yet to those of you who are pressed for time I advise its omission for the following reasons :—

1. Apart from cerebral vascular disturbances, syphilis, paralysis agitans, epilepsy and possibly disseminated sclerosis (the first three being frequently encountered in the general wards and out-patients), diseases of the central nervous system are seldom met in the ordinary course of one's work (infectious diseases such as meningitis belong, of course, to the province of general medicine)

2. Proficiency in neurology requires years of hard work, often to the exclusion of other aspects of medicine.

3. The practice of neurology is usually confined to accurate diagnosis; effective treatment is seldom available. The patient is interested in treatment, not in diagnosis. Whether you have unravelled the case or not, therefore, your victim will very naturally demand the opinion of an expert.

4. The public as a whole realise that neurology is a well-defined branch of medicine, and will not expect a general practitioner to be master of the subject.

Psychological medicine is of far greater importance to the general practitioner than organic neurology, because a patient's mental state obtrudes itself in association with all disease from whatever cause. Lack of appreciation of this fact has led to more failures in practice than any one other shortcoming. Suppressed anxiety is inimical to recovery and co-exists with the most trivial ailments. For example, a woman of 40 consulted me in my first week of general practice on account of sore throat. It was duly examined, passed as trivial and prescribed for. She went to another practitioner that afternoon. He, as a matter of courtesy, informed me of the rapid transference, and enlightened me as to its cause. The patient feared cancer of the throat, but, as is always the way, the more it is feared the less likely is it to be mentioned. The other doctor sensed the anxiety, assured the patient that she had no cancer, and became thereafter her family physician. The fear of cancer haunts a great number of women over the age of 30. For these we have to thank the newspapers, the publications of crank societies and the peculiar tendency of women to describe to their circle of friends in detail the horrors of a disease whose ravages they may have witnessed.

Three specialities which must be studied are diseases of children; nose, throat and ear; and skin.

The most important and, shall we say, the weakest link in the chain of family practice is the child. Make one error over its illness and the entire household will leave you. Children are not regarded by the public as a speciality, and you are expected to know all about them and infant feeding. My advice to you who cannot master the latter subject is that, if the mother cannot, or will not feed, and if the child loses weight on your favourite substitute, call in a children's specialist quickly. He is there to help you out of the mess.

Don't forget the wisdom of our Dean's remark at a demonstration which I attended some years back: "If you don't know the dates of eruption of a child's teeth the mother won't think much of you as a doctor." Two families came to me entirely as the result of the other doctor having had the misfortune to miss that demonstration.

Extra study of the second of our essential specialities is advisable, in the first place because alarming emergencies are apt to arise, particularly in relation to the ear. Correct diagnosis and the ability to institute appropriate treatment may be the decisive factors in averting permanent disability, or even death. Even the knowledge of how to remove painlessly hard wax is not to be despised. Most of one's work in ears consists of this. There are few tasks more irksome when the waiting-room is full of impatient patients. No doubt this accounts for the frequent encounter with a disgruntled case of deafness which has already been subjected to perfunctory syringing

without relief. In your early days it will surprise you to find that a dense plug of wax is still firmly wedged in the meatus, but in time you will realise that many patients have never been examined before or after the aural lavage to determine (*a*) the cause of deafness, (*b*) the result of treatment.

By the way, when, as a dresser, you feel that you have reached a high degree of proficiency at tonsillectomy, make a point of re-examining the patients a week after the operation. The result will have a chastening effect. You won't have to ask for a final overhaul when you do these operations in practice. The mother will bring the child whose throat she has studied day by day. Initially harmless-looking tags of tonsil have a habit of growing like mushrooms overnight. Incidentally, if your first case in private develops a nasal voice and regurgitation of liquids through the nose, do not resign from the practice hastily. All will be well in a fortnight.

The trouble about skins is that if the condition does not improve, the patient recognises the fact as quickly as you do. Furthermore, everybody has a peculiar loathing for skin disease, and is intolerant of tardy recovery. If you have never studied in the dermatological department you can be quite sure that your first private cases will have skin diseases of the most fulminant variety. If you know nothing about skins admit it (to yourself, not to the patient), and get the help of someone who does. A piece of advice given me by an old general practitioner was : " If the rash is dry use Lassar's paste ; if moist, use aluminium acetate ; if worse in three days get a specialist." I shall not comment on this, nor accept any responsibility.

Finally, I beg of you to lose no opportunity of assisting at ante-natal examinations and in cases of difficult delivery. Disorders of pregnancy in the widest sense are, contrary to the general belief, quite common. To be faced with a contracted pelvis, breech presentation and extended limbs is formidable to the expert. To a man who has never so much as applied forceps it is a nightmare, differing therefrom only in the length of duration and often tragic termination.

In the public's estimation blame is always to be attached to the doctor if the processes of childbirth go awry. You cannot refuse to take on midwifery unless you are prepared to halve your practice, because with the baby goes the family. Nothing is easier to manage than straightforward parturition. Nothing demands greater promptitude of action than the complicated case, the double issue depending upon your knowledge and skill—a statement which applies to but few illnesses.

VALUE OF HOUSE APPOINTMENTS AND HIGHER QUALIFICATIONS

The educational value of house appointments is so obvious as not to require stress. They have, however, the additional advantage of rendering their holder a more sought-after person by good partnerships. Higher qualifications have but little value *per se* in general practice, for the general public knows of only two, viz., M.D. and F.R.C.S. Such trifles as the M.S. pass unnoticed ! That the higher qualifications should be obtained, if possible, is to be advised because (1) the necessary study implies increased experience in hospital ; (2) they are essential for posts in all the larger provincial hospitals.

HOW TO EMBARK IN GENERAL PRACTICE

Although there are various ways of entering practice it should be taken as a general rule that some experience of the work should be gained before committing oneself to an agreement binding for several years. It is a good plan to go as *locum tenens* to different types of practice, *e.g.*, panel, non-panel, town, country and seaside, for they each have certain characteristics which it is as well to appreciate whilst one is still free to withdraw.

An assistantship is rather different, because it is almost always offered with a view to partnership after a period varying from half to two years. If it be not taken with this aim it should be remembered that no local advantage can be gained, because at the expiration of the agreement an assistant is forbidden to practise within a radius of five or more miles from the practice house.

Even a short assistantship should never be accepted on a verbal agreement. This precaution protects both parties and is absolutely essential. If the agreement is with a view to partnership the wording must be carefully perused, for more than one young doctor has devoted two or three years of his life to the working up of a practice as an assistant, and has then been dropped by the principal on some technical ground, such as incompatibility of temperament, etc. Clearly it pays the unprincipled possessor of a practice to engage an assistant at a fixed salary of, say, eight guineas a week (much less may be offered), who will work furiously with his eye on a partnership, than to share the total profits. The amount of sharp practice in our profession is by no means negligible. Personally I feel that, after doing one or two *locums*, it is best to negotiate for a partnership straight away, because even then there should be a six months' introduction which should be

long enough to enable one to make up one's mind as to the wisdom of the choice.

The question now arises whether one should simply "squat" in a growing neighbourhood, buy a one-man practice, or enter a partnership? Fifty years ago squatting was worth it, although even then the depression of waiting day after day for the first patient must have outweighed the saving of premiums. Nowadays the profession is overcrowded, and, although a few men still pull off the gamble, the risk is too great to be incorporated in general advice such as this purports to be. Another objection to putting up a plate and hoping for the best is that for three years our budding doctor will be afraid to take a single day's holiday for fear of losing not only a patient, but a possible valuable introduction to a neighbourhood. Again the first year's practice will be negligible, and that time will be completely wasted. Theoretically it might be employed in further study; in effect, this seldom happens, because the mind is too distraught thinking of the possibilities of ruin in the near future.

A "squatter" is usually extremely unpopular with the local practitioners. Actually he is worthy of admiration for his courage and tenacity, but, indefensible though it may be, this is seldom the attitude of the doctors already established in the town.

With luck, the cost (including losses of first two years) of setting up in practice in this way just about equals that of buying a partnership, with the advantage that once it is a going concern there are no financial obligations to partners on their retirement, so that the net value is definitely greater. The ability to squat implies means of raising capital, whereas this does not necessarily apply to joining a partnership.

The objection to buying a one-man practice is that holidays are taken too seldom because of the costly alternative of a *locum tenens*. The cost does not stop with his fees, but may be extended by his losing your best patients through carelessness, drunkenness and so forth. Which brings me to the necessity of obtaining personal recommendation of a man before entrusting him with a practice. Non-hospital agencies can seldom give sufficient guarantees. The best scheme for a single practice is a mutual agreement with a fellow-practitioner to carry on for holidays.

In favour of single-handed work is the knowledge that what you earn you keep, and the freedom from quarrels and petty jealousies between partners and or their wives which make some partnerships little better than bondage.

Personally, I am all in favour of partnerships, not only on account of my own fortunate experiences, but, further, because they provide for adequate holidays during which there is the satisfaction of knowing one's income has not ceased to exist. A joint concern can, furthermore, afford expensive instruments, and the invaluable services of a secretary which imply proper book-keeping and few bad debts. Some degree of specialisation is also possible for the individual members of the firm, thus increasing the total amount of work carried out. Sickness does not spell ruin, and, as a rule, you can rely on the friendship of your partners in what may be an otherwise unfriendly medical world.

CHOICE OF LOCALITY

Next must be considered whether you prefer a country to a town practice, for, apart from your personal inclinations, you must bear in mind that the type of work presented by an industrial centre is quite distinct from that of a seaside watering resort. In the former the mean age of the population will naturally be considerably lower than that of a purely residential town, and therefore your work will be more varied, whereas at the seaside or in the country you will deal largely with patients over 50 years of age, suffering from chronic complaints which will tax ingenuity to the utmost. The greatest advantage of a town practice lies in its proximity to hospitals and libraries.

PANEL

Finally, as a general consideration you must consider whether you wish to take up panel work, and, as I have no personal experience of this, I shall not give you any advice concerning it.

METHODS OF SECURING AN INTRODUCTION TO A PRACTICE

(1) *General Agencies.*—Of these there are many; the majority merely make contact between the would-be general practitioner and an established firm, but cannot supply any reliable information about either party. In such cases the fees charged by an agency may be excessive, the partnership having to pay not only a proportion of the original share price, but also further sums as fresh increments of shares are purchased.

(2) *Hospital Agencies.*—These are more satisfactory, because an agency such as that in our medical school office can not only supply authentic information about applicants, but also usually possesses useful knowledge about the members of the desired partnership. Furthermore, the introduction costs are fair and reasonable.

(3) *Casual Communications.*—By this I mean the hitherto dominant method of introduction,

namely, through a member of the hospital staff who has been asked to recommend some suitable man to a practice with which he comes in contact. Naturally a personal recommendation goes a long way towards securing a job, and a further advantage lies in the introducer knowing the strong and weak points of both partnership and applicant.

PRELIMINARY INTERVIEW

How few of us know anything of value when we leave hospital, save, perhaps, a smattering of medicine! Consequently, how utterly at sea we feel when faced by two or three benevolent but tired potential partners at our first week-end visit of prospecting. Our carefully prepared speech of gently modulated self-appraisement followed by reasonable but determined demands for satisfactory financial security freezes on our lips. Sympathetically you will be fortified by a whisky and soda, which will make you feel more inane than ever. In parenthesis, never take more than one; your doing so might be construed as a sign of incipient alcoholism, which is generally regarded as an undesirable asset. The talking is then done by the other side, who dissect you thoroughly, though very kindly, and when you return home in chastened spirit you will find that your knowledge of the practice has advanced but little, if at all. The following questions, though not exhaustive, will at least help you to "keep your end up" and provide a tangible ground for discussion:—

(1) What is the gross and nett income, the latter to represent the actual sum shared out after deduction of practice expenses and Income Tax?

(2) What share is offered for sale and at what price? It is unusual to pay more than twice the average gross annual receipts attributable to such a share. They are based on the balance sheets for the last three completed years immediately preceding the date of entry into the partnership.

(3) At what intervals may further fractions be purchased until the share of the incoming partner has been raised to parity with that of his colleagues? Generally speaking, the equalisation of shares should be accomplished not later than ten years after entry, and a clause should be inserted allowing for such completion at seven years if the partner can show that his earnings justify it. The price of further fractions should, of course, be based on the same figures as those used for computing the value of the original share.

(4) Whether any objection would be raised to an independent accountant auditing the firm's books? This, of course, at your expense. Should such an objection be forthcoming, look for another practice.

(5) Is a secretary kept for the purpose of dealing with accounts, orders, etc.? The expense of a part-time secretary is amply repaid not only in cash, but also in saving of the truly devastating expenditure of energy in preparing, sending out and receipting quarterly accounts.

(6) Are the majority of accounts sent out quarterly? This is an important point, because, in the event of a yearly issue only, the incoming partner may have to wait 18 months before he receives sufficient to pay for the bare necessities of existence.

(7) What are the special characteristics of the practice as regards the proportion of midwifery, surgery, panel, long-distance calls and so on? What are the usual fees for visits and for consultations at home? There is no doubt that a partnership benefits if one of its members practises surgery, provided that he be possessed of special surgical qualifications and opportunity for constant practice in a local hospital. Casual surgery is, however, fraught with danger to patient and the doctor who performs it. In this connection the following points are worthy of consideration:—

(*a*) A fatality following an operation by a general practitioner, no matter how skilfully performed, is invariably ascribed by the relatives and friends to his incompetence. The same result from the hands of a consulting surgeon is attributed to fate, and no one is blamed. In the former case at least one, and possibly several, families will cease to be patients of the firm.

(*b*) Patients seldom pay an adequate operation fee to their own doctors, but will cheerfully produce a large sum for a strange surgeon, if only for the pleasure of talking about the "specialist's" fee afterwards. Furthermore, in the first instance, the doctor will be expected to pay innumerable subsequent visits without question of further payment.

Looking at it from a purely commercial point of view, it will be clear that the practitioner seldom gains anything by operating, for the sum which he would receive for this would, in the event of a surgeon being called in, be equalled by the fees which he could then justly demand for assistance at operation or anæsthetic, and subsequent visits. At the same time he would be relieved of the great responsibility incurred by operating at the end of an exhausting day of general practice.

(8) To what extent does the income of the practice depend upon appointments held by members of the firm? Are they held by the outgoing partner? If so, what is the prospect of their being retained by the partnership?

(9) What special work devolves upon the junior partner, *e.g.*, night calls, midwifery, etc.? Al-

though it is to be expected that the incoming man shall be prepared to do a lot of the least attractive side of the practice, yet it is not right that this should obtain once he is pulling his weight.

(10) What length of holiday is allowed? At least a month should be taken from a busy practice.

(11) Must the new partner take up residence in a house specified by the firm? This is usually the case, and, indeed, advisable when one is filling a vacancy due to retirement. Strange as it may seem, a very considerable amount of practice "goes with the house."

(12) Must the house be bought, or can it be rented? Occasionally the established members of the partnership are prepared to buy the house and let it to the incoming man if he suffer from financial embarrassment.

(13) Is the share purchase money required in a lump sum, or may payment be made in instalments over a few years? If the latter, what rate of interest is demanded? At the first opportunity you should then calculate the amount of money you are likely to receive each quarter after paying rent, rates, instalment of purchase price, interest on outstanding amount and car expenses. Otherwise you may find yourself committed to an apparently attractive proposition which actually leaves you with insufficient means to buy your food and drink. From cases I have known this advice is evidently not quite as obvious as it may appear to you.

(14) What length of introduction to the practice will be given by the partner, or independent practitioner, whose place you are taking? At least four, and preferably six, months should be devoted to this, as it will almost certainly ensure your retaining some 80 per cent. of the patients.

(15) Is there a probability of your being elected to serve on the staff of the local hospital? If so, is this advantageous to the particular practice you are considering?

A word of warning is necessary with reference to a one-man practice. You may be favourably impressed by the books, but you may be taking the place of a doctor whose popularity has been steadily diminishing as the result, as often as not, of drink. This will not be reflected in his receipts, because the majority of patients are extraordinarily loyal. But when the new doctor replaces the old, they will seize the opportunity to flock to an already established practitioner rather than risk themselves in the hands of a man whose introduction has come from a degenerating alcoholic.

Assuming that the original interview has been satisfactory to both sides, it is well to arrange for a second visit, preferably for a week-end, when you and your wife, if any, can meet the partners on more social lines. Your wife will have the opportunity of inspecting your future house and making inquiries as to the cost of living in the district, and will, in fact, obtain information of the greatest value to any man who has carefully to consider matters of expenditure. She will also be able to meet the other partners' wives—a most necessary preliminary, for instinctive antipathy of women has been known to wreck a partnership composed of friendly and excellent practitioners.

ARTICLES OF PARTNERSHIP

We have now to consider the all-important matter of the partnership agreement. The first essential is a good solicitor possessed of special knowledge relevant to general practice. No matter how charmed you may be by a particular partner, never accept the suggestion that the matter of agreement should be left in his hands. I know of two instances in which a doctor has waived the suggestion of properly executed articles of partnership with the statement: "We are both Guy's men. Why waste money on legal procedure when we who worked in the same hospital can obviously trust each other?" Beware of this "home-from-home" attitude. It spelt disaster in both cases. I do not propose to enumerate fully all the desirable clauses of a partnership deed, for a specimen is kept at the medical school office and can be consulted by any of you. Clearly certain essentials such as I have indicated at the original interview, *e.g.*, cost of share, holidays, and so on, will be included.

Dissolution.—In addition, be sure that there is an equable provision for dissolution of practice. A few years ago I met a Guy's man whose solicitor has allowed him to go into practice with an agreement which left the senior partner free to dissolve partnership on the broadest grounds, but gave the junior no loophole of escape, unless he were prepared to sacrifice all the money which he had put into the venture. No matter how careful you may be, it is obviously possible to find yourself totally unsuitable for the particular work, or district, and it should, therefore, be possible for any partner to withdraw on a six months' notice. He should then be paid out on the same basis as used for the calculation of share purchase. (One partner having given notice of retirement, it should be stipulated that no other partner may do likewise until the end of two years. This clause is necessary to avoid serious damage to a partnership. At the date of withdrawal from the practice it should be incumbent upon the remaining members of the firm to pruchase the share at the agreed rate.)

PRIVATE PATIENTS

The right to have one or more private resident patients, whose fees belong solely to the practitioner with whom he resides, is worth securing. It is a method of supplementing income during the first lean years, though not a pleasant one. Most of the patients are insane, but not certified. In fact, they are dumped on a doctor living at a great distance from the responsible relatives. Often they demand the right to live as a member of the family with whom they reside, consequently one is never free from a stranger wandering aimlessly in mind and body, even in one's few leisure moments. You may have noticed that mental defectives take twice as long over their morning toilet as do the healthy. If bathroom accommodation is limited, a few weeks of lingering outside locked doors as a preliminary to breakfast is apt to ruffle the temper in no small measure. Again, one is forced to choose dinner guests with extreme care, always demanding of them a strong sense of humour. I have known a resident patient roll on the floor, and pinch the servant's legs in the middle of a " starchy " dinner party, and no one saw the joke or called thereafter.

LEGAL PROCEEDINGS

It should be stipulated that each partner should be responsible for joining some legal defence society. In any case the liabilities of one partner shall not be shared by the firm.

INDIVIDUAL EFFORT

A clause rarely seen but of the utmost value relates to the earning capacity of individual members of the practice. It is, for instance, possible to find oneself in a prosperous firm, and yet one partner may be a " passenger " though drawing the major share. If the discrepancy is gross, allowance should be made for adjustment of shares. The mere presence of the clause will prevent a temperamentally lazy man from letting the others do the work whilst he plays golf.

The Element of Doubt

By Gordon Nesbitt Wood, Esq., M.B., B.Ch.

THERE were a number of excellent reasons why I did not chronicle these events at the time they took place, but perhaps chief among them was the fact that I was after a job at the time and jobs do not go to those who self-confessedly " see things." However, several years have passed since then, and certain circumstances have arisen lately which perhaps make the story worth telling.

In the summer of 1916 I was on a cruise in a small yacht with two companions, and after coast-crawling as far as Dartmouth we decided to strike across the Channel and return eastwards up the coast of France. Leaving Dartmouth one sunny morning at about midday, we set a course S. by W. on Isle Vierge and sailed all day without incident, but the wind being light by 9 o'clock that night we had only done 23 miles. The night was a fine one with a good moon, and when I relieved the helm at 2 a.m. there was every prospect of an enjoyable two hours' trick—if the " gravy-eye " watch can ever be said to be really enjoyable.

With a freshening wind abeam we were slashing through the sea in fine style, and I was treated to an amazing display of phosphorence. Sheets of white flame flew from the lee bow and a broad silver wake lay behind, broken occasionally by the spurts of pale fire which marked the dinghy's bow wave. Now and again the peculiar whistling grunt of porpoises could be heard close at hand, but, apart from these, we appeared to be alone on the sea and not a single ship's light could be seen. The effect of watching the compass card swinging in its little circle of light, varied by glances at the streaking phosphorescent wash, soon produced a slight hypnotic effect, and I dare say I nodded a trifle now and then.

Suddenly, to my astonishment (because I did not think I had been keeping quite such a bad look-out), I saw a large two-funnelled steamer on the port beam, barely half a mile distant, and it was obvious at a glance that she was in serious trouble, as she had a marked list and was also down by the bows. Boats were being lowered in mad haste, and, even as I watched, disaster overtook the first two, one remaining suspended by the falls at one end while her people fell headlong into the sea, and the other capsising as it struck the water. Events were moving with the speed of a cinematograph, and it was apparent that a fearful fate would overtake the remaining boats and those still left on board as the stricken steamer was sinking too rapidly for them to get clear. Up and up went her stern till I could see her propellers still slowly turning and the water pouring from her sides like molten silver, whilst those in the boats still struggled to get away and others clung like a swarm of bees to the slanting decks. Suddenly

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the final ghastly moment came, and the huge bulk of the ship turned over, crashed on the boats, and in a swirling, boiling mass of water and foam plunged below the sea.

As she disappeared, the spell which had kept me voiceless and rooted to the steering seat was broken, and with a cry of " Turn out ! " I thrust the helm hard down and hurled myself on the headsail sheets. In a spatter of spray and with a rattling of canvas the yacht came into the wind, and the man on what had been the lee bunk, waking at my call, was flung on to the man on the floor berth and a torrent of cursing broke out in the cabin, quickly followed by the eruption of the watch below. " Sheet home the jib to port ! " " Now foresail, hard on it, chaps ! " and we were making for the scene of the disaster. To their urgent clamourings for information I could but point to the waves ahead and gasp out a few of the facts as I searched for the wreckage and the heads of the swimmers I expected to find ; but, search as I would, not a sign of life or wreckage broke the surface of the night sea and not a single floating object showed in the moonlight.

Very soon a torrent of recriminations descended on me. " You're dreaming, man ! " " You've been asleep at the helm ! " Especially bitter was he of the floor berth who had taken 12 stone on his face, and my explanations and statements were rudely brushed aside. " For Heaven's sake pull yourself together and get her on her course," and they went below again leaving me for the remainder of my watch completely unstrung, so vivid were the recollections of the disaster which I was certain I had witnessed. Had the ship dragged everything down with her ? Impossible ! With a sort of tingling sensation down my spine it dawned on me that the whole business from start to finish had been absolutely silent. Jove ! I was seeing things with a vengeance—and yet, perhaps, this merely bore out what the others so forcibly asserted, that I had dreamt the whole thing.

Ah, well ! By next day I had pretty nearly accepted this as the explanation, and with the passing of time the vividness of it all has faded greatly, and doubtless would have been completely forgotten in days to come but for this sequel.

A week or two ago a friend lent me a vast and comprehensive work on the activities of the German submarines in the War. Idly browsing through it a paragraph suddenly seemed to be written in letters of fire on the page : " Here, 40 miles S. by W. of Dartmouth, the S.S. *Riverway* was sunk by U.E.18 in the small hours of a bright moonlight night on July 21st, 1916. This ship was torpedoed without warning, and certain other atrocious circumstances of the sinking caused Kapitan-Leutnant Hans Schenke to be arraigned as a War Criminal."

With shaking fingers I got out the notebook containing my log of that cruise. I knew what date I should see there—I just felt it in my bones. Yes, there it was : " July 21st. Barometer 30.24. Wind S.E., light to moderate. On watch again 2 a.m.—4 a.m. Apparently fell asleep on watch this morning. . . ." I wonder.

Among the Hop Pickers

By C. W. Marshall

THE hop-picking season has come and gone, and doubtless many of us have been inundated with requests from patients as to whether or not they were fit to go and swell the ranks of the great army of pickers. Having had charge this year of the work of a hospital in the heart of the hop-growing area, built solely for hop-pickers and only opened in the picking season, I have had some opportunity of seeing the condition under which the pickers live and work. It has therefore occurred to me that it might be of interest to some to know a little more about this occupation, which provides the only form of summer holiday available for many of the very poor.

The pickers for the most part consist of women and children. The whole family comes down, from aged grandmother to tiny baby, but the menfolk, of course, continue their regular employment, or, if unemployed, are chary of accepting temporary work which may interfere with their qualification for benefit. Many families come down to the same farm year after year by old-established arrangements with the farmers.

When the hops are ripe the farmers write off for their pickers, often at very short notice, and then comes the scene with which we are familiar at London Bridge Station. Loading all their household goods and chattels into a " pram.," the family sets out, if fortunate being met by lorries at their destination ; if not, it has to be a walk to the camp, and this is not always a short one.

The camps consist of rows of huts, in most cases built of corrugated iron sheets, but a few are built of wood or of brick. Floors may be earth, cement or, in some cases, wood, and on these are laid faggots, then straw, and on this the bedding. In some huts wooden frames raise the beds from the floor. When the pickers arrive there is great competition for old boxes from local

shops for use as tables and chairs, and they then proceed to make themselves as at home as their ingenuity, or lack of it, suggests. Some will hang up strips of wallpaper to hide the walls and put lengths of old carpet on the floor. Others hang up curtains to partition the hut, for of privacy there is none, and a hut may have half a dozen or more occupants. Spare clothes are usually hung from the roof. By keeping the same hut from year to year some families achieve a comparatively high standard of comfort and tidiness, but this is the exception rather than the rule.

Most camps now have their own standpipes for water, though this has not always been so, and sanitary arrangements continue primitive. Food is either sold from tradesmen's motor vans in the camps or fetched from the villages, and it is surprising how the system adapts itself to such a vast visiting population. This year at least 30,000 pickers came down by train, rather fewer than usual, but numbers came down by lorry. Cooking is supposed to be done over communal fires in specially built shelters, but many prefer their own open " gipsy " fires before the huts, and these cause many burns and scalds among unwary toddlers.

The health of the pickers appeared to be surprisingly good, though this is not the case every year. Medical care is provided by various voluntary organisations ; where I was there was a central hospital with ten beds and an out-patient department, with three outlying huts adjoining large camps and in charge of nurses, and we saw nearly 1,000 new cases in just under a month.

The work for the most part was as in the Front Surgery, but it was certainly a change from hospital routine to do a round of the tents twice a day in an ex-L.C.C. ambulance, bringing in any cases requiring hospital treatment, and there are always surprising things happening. One baby thought fit to arrive in one of the " bins " into which the hops are picked. One child fell off a rick and broke his arm, and his mother, running to pick him up, fell down and broke her ankle, and his brother in turn, running to help the mother, fell down and broke his arm. One also saw for the first time " hop eye," " hop rash," and " hop gout." The former is a simple acute conjunctivitis where the patient has rubbed irritating hop juice in the eye. " Hop rash " is an acute dermatitis affecting face, hands and fore-arms, in only one of our cases severe enough to require in-patient treatment, and healing very readily when work is stopped. " Hop gout " is a tenosynovitis affecting the extensor tendons of the wrist or, occasionally, of the fingers, and only affecting the picking hand. Its cause is readily understood when one appreciates the amount of work one picker may do, as 35 bushels a day, bringing in six or seven shillings, may be picked by a rapid picker.

There was very little illness among the small children ; perhaps it is that the Borough child is not accustomed to first-class living conditions, and it was a pleasing sight to see the colour appearing in pale faces after a few days' sunshine. When it is wet the mud round the huts is a great trial, but the Borough folk, as always, take their troubles philosophically, and though they vow after a wet season never to come down again, they will always come back and chance the weather for the sake of a month in the country.

Guy's Hospital Gazette

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The Editor will, at all times, be glad to consider articles or sketches, provided that they are accompanied by the writer's name and address, not necessarily for publication. The payment that the GAZETTE can offer is merely nominal. Authors who desire reprints of their papers should make their own arrangements with the printers when they return their proofs. All contributions to be addressed to *The Editor*, who does not accept responsibility for the views expressed by contributors.

Correspondence

Mr. Ogilvie's Lecture

To the Editor of the GAZETTE

SIR,—A note of criticism in Mr. Ogilvie's interesting lecture on Poliomyelitis invites reply. He states "there is a tendency among neurologists to belittle the importance of relaxation, and even to suggest that it may lead to stiffness in joints and loss of power in unaffected muscles; this teaching has been responsible for much avoidable crippling." I shall speak only for myself, but believe that my views are shared by other neurologists.

With Mr. Ogilvie's emphasis on the importance of muscular relaxation in the early stages I should, on the whole, agree. Certainly no weak or paralysed muscle should be allowed to be stretched to a degree, or for a time, that may result in permanent structural elongation. For the completely paralysed muscle absolute and quasi-continuous relaxation is probably desirable. But there is theoretical reason for the belief that when the stage has been reached at which some voluntary power is constantly present a physiological degree of stretching (which is in the literal sense a "tonic" for healthy muscle) may do good.

Care of the muscle, however, is by no means the only part of treatment. The situation, after the acute stage is over, is one in which a variable (usually a large) number of lower neurones are out of action. Some of these are capable of recovery, and the time will come when they will again respond to impulses descending upon them from the exercises of the will. This time should be carefully looked for, and the opportunity of developing function in the recovering neurones by voluntary exercise exploited to the full. To this end the patient should, as soon as the acute stage of the illness is past, be taught to attempt daily willed movements in all weak and paralysed muscles. The exercises should be so regulated as to avoid fatigue, but allow opportunity for progressive effort. It is in this sphere that the services of a skilful masseuse are invaluable, and I have learned almost with amazement the amount of improvement that may be gained when the daily programme of exercises is directed by one who has the requisite knowledge, enthusiasm and ingenuity to hold the patient's interest and make an entertainment out of necessity.

Mr. Ogilvie has, I think, concentrated his attention upon the muscle to the neglect of the nerve cell. His assumption that recovery takes place by the down-growth of new axons is, I believe, theoretically false. If the anterior horn cell is killed by the infection its axon dies with it, and there can be no regeneration. If the anterior horn cell survives, so does its axon, which is ready to conduct as soon as the cell can transmit. Clinical observation supports this view. Recovery of function is, for the most part, much too rapid to be explained in terms of regeneration. Of the neurones that survive, the majority are in working order within three months of the onset; the remainder come into action within the next three months. The further improvement of function which may continue for months of years is gained by means of re-education and muscular development, aided, if necessary, by the mechanical devices which Mr. Ogilvie describes.

I should hope that the charge levelled by Mr. Ogilvie at neurologists may be over-stated, and that they are better acquainted with the principles of treatment in flaccid paralysis than to allow crippling to occur for lack of adequate splinting.

On the other hand I would submit that there is a tendency among orthopædic surgeons to over-emphasise the importance of splinting, and especially of continuous splinting to the neglect of re-educative exercise. I cannot believe that in the earlier stage of recovery continuous immobilisation is justifiable to the point of allowing stiff joints to develop for lack of daily passive movements, or that at any stage the wearing of splints should be allowed to interfere with the encouragement of neuro-muscular function.

Yours, etc.,

C. P. SYMONDS.

South African Rugby Football Team

To the Editor of the GAZETTE

SIR,—The presence in England of the splendid team of football players from South Africa has tempted me to raise the question of trying to arrange a match at Honor Oak Park on behalf of the Hospital on a Wednesday, say in early December, between a team of the South African players, of whom I gather there are 29 men, and ourselves.

Is it too presumptuous to suggest it? Is it quite impracticable? I hope not, for the match, besides securing a very acceptable sum for Guy's, would be most popular among us. Above all, it would cement still more firmly, if that is possible, the bond of friendship between us and the many Guy's men scattered all over South Africa. It

would once more remind the more elderly of us of those who did much for our football in the past, although we are not likely to forget them, men the names of whom rise before me as I write—J. A. and P. Krige, Reitz, Bekker, Albertijn, Neser and many others. My imagination does not err, I am sure, in picturing the great pleasure it would afford these old friends in South Africa to learn that some of their distinguished players now in this country were displaying their prowess on the now, and as we trust it may remain, mudless ground at Honor Oak Park, and at the same time doing something to benefit their old hospital and school.

Yours, etc.,

JOHN FAWCETT.

66, Wimpole Street,
W.1.

To Voice a Grievance

To the Editor of the GAZETTE

SIR,—May I use the columns of your invaluable journal to voice a grievance?

I have spent more years at Guy's than I care to make public, and in the years I have spent in pursuit of medical knowledge I have seen and learnt much outside the realms of the profession. Of the many features organised by constituted authority and unorganised by fellow students which together compose hospital life, but few have aroused unpleasant emotions within me.

The arrangements made for the opening of the present Medical School year did, however, ripen a seed of discontent which was planted some years ago. This year we were honoured by the presence of a distinguished man of medicine from the University of Oxford. Consequently, Guy's paid a pretty compliment to the Oxford men within the Hospital by inviting them to lunch to meet their more illustrious medical brother.

On a previous occasion the Cambridge men were similarly honoured for a similar reason. I repeat, a pretty compliment, and one worthy of all praise.

I, Sir, am a humble Conjoint student, but I, unlike a 'Varsity man, have supported Guy's in every way since the day my medical career saw its birth. Now that career, unadorned by University glamour, is drawing rapidly to a close. I have seen, amongst other things, men whose medical nursery was never our Medical School receive invitations to lunch with the august person on the day on which he is to perform our annual academic ceremony. Would the Hospital have lost any dignity had the authorities invited the Conjoint men to lunch when Lord Moynihan honoured us a year ago? He is the President of the College of which we obtain, after certain formalities, the membership. I submit that the Hospital missed an opportunity to do us, her more humble but none the less loyal sons, some small honour.

Yours, etc.,

M.R.C.S., L.R.C.P.

Guy's Hospital,
S.E.1.

The Teaching of Treatment

To the Editor of the GAZETTE

SIR,—I noticed in the last *Gazette* an appeal for some way of teaching the treatment of cases—a wise appeal, but does it lie with the Staff to teach it? I think not, as every student should know his drugs and mode of application.

I remember when Materia Medica lectures were given, the lecturer emphasised opium and quinine and rhubarb, and then solemnly said: "Gentlemen, remember, two tablespoonsful three times a day are stepping-stones to faith." Perhaps he was right, but so much for teaching Materia Medica.

Years ago it was not unusual for would-be medicals to spend six or twelve months with a medical man previous to going to hospital. There are many advantages in this—he discovers if his love of humanity is good enough to serve him in the future, if he has intuition, and if prepared to sacrifice a good deal of social life; he learns his drugs and probably his bones, a lot of surgery if with a surgeon to a hospital, and also a lot of scrappy medicine; all of which is re-organised when he gets to hospital.

Now the usual books put into his hands were Holden's Bones, Druitt's Surgeon's *Vade Mecum*, Hooper's Medical *Vade Mecum*, and lastly—most important—Nelrigan's Medicines, by Macnamara, a book the premier of its kind on the doses and mode of administration of drugs. This and Holden on bones were the two books pressed, the others your novel, and I strongly recommend anyone who wishes to know and understand drugs to get it, unless he prefers to be amongst those who have, perhaps, half a dozen prescriptions on which he rings the changes, or he takes up the productions of the super-chemists, of which they know little and he knows less.

Yours, etc.,

AN OLD GUY'S H.P. (1879).

Sport

Rugby

Guy's v. United Services

VISITING Portsmouth for their first away fixture of the season, the Hospital XV accomplished a very fine performance when, on Saturday, October 3rd, they defeated the home side by a placed goal, a dropped goal and 2 tries (15 points) to a goal and 3 tries (14 points).

The Services have a particularly strong side this season, and having beaten Blackheath the previous Saturday on the latter's ground, it looked as though Guy's would have to play particularly well to overcome their formidable opponents.

On the run of the game Guy's were worthy winners, and would have won by a greater margin of points, but several passes were dropped in their anxiety to cross the line when favourably placed.

The Services were without their international full-back, K. A. Sellar, but they had a reliable substitute in P. N. Buckley. On the other hand, Guy's lacked the assistance of R. J. Eustace, who was injured whilst playing for the Eastern Counties during the week, and J. Cunard. Luckily, Popplewell was available, and made his first appearance of the season, and J. Howell filled the vacancy at scrum half and did very well.

From the kick-off Guy's attacked strongly, and, after keeping the Services penned in their 25, Giesen made a clever opening and sent in Ashdown, who crossed near the corner flag to give Guy's the lead after five minutes' play. In a brilliant effort to convert from a difficult angle, Hogbin hit the far upright with a kick taken from near the touch-line. Guy's nearly added to their lead a few minutes later when Windsor Lewis was only stopped from developing a dangerous attack when he was splendidly tackled by Vaughan Jones.

The Services then carried play to the Hospital 25 as the result of a fine dribble by their forwards. During this attack Elliot tried to drop a goal, but his kick was charged down and Forrest just failed in an effort to score from a penalty. A moment later a good movement by their threes broke down as the result of Magee knocking on, and Guy's soon after touched down.

Atkins then brought off a fine tackle when he forced St. Clair Ford into touch near the corner flag. Guy's gradually forced their opponents back, and an intercepted pass in the Services' half gave the Hospital an opportunity of increasing their score. Ashdown made the running, and, when faced by the full-back, passed inside to Giesen, who ran over for a try, which Hogbin splendidly converted.

The Services went straight away from the restart and registered an unconverted try by Casement as the result of a splendid forward rush, but a minute or so later Guy's went further ahead as the result of a brilliant individual effort by Windsor Lewis, who caught the defence in a tangle and slipped through for another try, which was not converted.

The opening of the second half saw the Services in a most determined mood, and in a short space of time two of their forwards, Falla and Reynolds, had registered unconverted tries. Prior to this, Guy's missed a great chance to score when, after a clever run by I. K. Thomas, Giesen just failed to accept a pass when near the goal-line.

With only two points separating the sides, the Services encouraged by their success, went all out for the lead, and Ford, Elliot and Benson all made desperate efforts to cross, but were hurled back.

The Guy's pack were now getting the ball in the set-scrums, and Windsor Lewis cleverly eluding the close attentions of Elliot sent Giesen away, but a grand tackle by Buckley near the home line saved a certain score.

The Hospital forwards continued to dominate the game, and as the result of another attack Windsor Lewis dropped a splendid goal. Immediately after, Lewis profitting by a home mistake, drew Buckley and passed out to Ashdown, who had the line at his mercy; fortunately for the Services the pass was deemed to be forward, and Guy's were held up.

In the last minute the home side scored a good try through Benson, who carried on a splendid movement initiated by Webster and Elliot, which he converted. It was a great game and very exciting from start to finish.

Team.—L. Wailer; H. J. B. Atkins, I. K. Thomas, J. E. Giesen, D. E. Ashdown; Windsor H. Lewis (Capt.), J. Howell; J. S. Batchelor, J. P. O'Shea, R. J. Drummond, I. G. Robin, J. R. F. Popplewell, A. R. Clarke, R. A. P. Hogbin, T. Morgan.

Guy's v. Cheltenham

THE visit of the Hospital team to Cheltenham, on Saturday, October 10th, proved a great local attraction, as both teams had won all their opening matches. Additional interest was added to the match by the fact that the home captain was opposed to his brother, J. Howell, at scrum half. Playing delightful football throughout the game, Guy's gained a decisive victory by 3 placed goals, a penalty goal, and 2 tries (24 points) to 2 penalty goals (6 points).

The Hospital backs were in excellent form and, as result of a perfect understanding, gave a dazzling exhibition of passing and inter-passing which frequently had the Cheltenham defence guessing and in a tangle. The forwards also monopolised the scrums, and, considering that they were up against a very fine pack, they deserve praise for their team work, which enabled the backs to see so much of the ball.

Cheltenham kicked off and Guy's at once opened out, and, passing brilliantly, they swept down upon the home line with an electrical burst of speed, and Atkins was only stopped near the line. A penalty awarded to Guy's nearly led to a goal, as Hogbin only just missed with a fine shot.

Following the drop-out, Guy's attacked again, and another bout of passing culminated in Ashdown crossing for an unconverted try.

Cheltenham retaliated with a brief visit to the Hospital 25, but with Howell beating his brother at the base of the scrum and the forwards heeling better, the Guy's backs were always on the move. Howell and Windsor Lewis initiated a glorious movement, which took the Hospital right down the field, passing and inter-passing in delightful style. Nothing could stop them, and Windsor Lewis, taking the final pass, raced over the line to score behind the posts, and Hogbin converted.

The home side then re-arranged their back division and attacked immediately. After two attempts had been made to score from penalty kicks for offside, Holtman landed a good goal from a difficult angle. Encouraged by this success, Cheltenham played up well, but before the interval Guy's made two or three attempts to score, and Windsor Lewis just failed with a drop at goal.

Guy's opened the second half with some whirlwind play, and their passing was magnificent. Following a scrum, Windsor Lewis passed out to Giesen, who cut through and passed to Thomas; the latter must have scored but for knocking on. Soon afterwards, Lewis crashed through the defence, and sent in Thomas to score midway between the posts and corner flag.

Cheltenham were now being beaten in all departments, and Guy's were playing with fine polish and understanding. Another grand run by the backs resulted in Ashdown registering another try, which Hogbin converted with an excellent kick.

The home side could do little but defend, and, with the Hospital playing in irresistable style, Windsor Lewis again cut clean through the defence and scored under the posts, Hogbin converting.

Near the end Cheltenham rallied and scored from a penalty, but Hogbin retaliated by kicking another fine penalty goal, which ended the scoring.

Team.—L. Wailer; H. J. B. Atkins, J. E. Giesen, I. K. Thomas, D. E. Ashdown; Windsor H. Lewis, J. Howell; J. S. Batchelor, J. P. O'Shea, R. J. Drummond, I. G. Robin, J. R. F. Popplewell, T. Morgan, R. A. P. Hogbin, A. R. Clarke.

Hockey

Guy's v. R.A.S.C. (Feltham)

THIS match was played at Feltham on Wednesday, September 30th, 1931. In the first half Guy's played extremely well, and there were some excellent combined movements among the forwards, the ball being swung about in first-class style. The Hospital scored two goals in the first ten minutes, and the R.A.S.C. never really recovered from this. Lyne played a characteristic game, and very few centres went astray. The defence was not quite so impressive, and the R.A.S.C. were given too many opportunities of shooting which were not turned to account mainly owing to Schofield.

In the second half the Hospital were rather lethargic and only scored twice. Dryland at inside left was distinctly promising—especially his flicking—but must learn to tackle back more. Goals were scored by Lyne (3), Tilleke (2), Dryland and Rowe.

Result.—Guy's, 7; R.A.S.C., 1.

Team.—J. B. Schofield; F. Corfe, F. Hayward (Capt.); S. M. Tinkler, A. G. Richmond, S. W. Wright; R. O. F. Tilleke, W. H. Dryland, E. B. Rowe, C. A. Clarke.

Guy's v. Kingston Grammar School

A MATCH was played at Kingston on Wednesday, October 7th. Kingston Grammar School proved to be a very good side, and in the first half quite outplayed the Hospital team, every one of whom—with the possible exception of Carrell—had an off-day. There was a disastrous 20 minutes when the Grammar School scored four very good goals, the Guy's defence being quite at sea during this time. The main fault was that the wing halves did not mark their wing men, and the inside forwards made no attempt to tackle back.

In the second half things were better, and each side scored twice. The game will do the Hospital side a great deal of good, showing up, as it did, some very glaring weak spots and illustrating the importance of clean stick work and accurate passing, at which Kingston excelled. For the Hospital, goals were scored by Lyne (2) and Sharp (1).

Result.—Kingston Grammar School, 8 ; Guy's, 3.

Team.—J. B. Schofield ; G. N. Carrell, F. Hayward (Capt.) ; S. M. Tinkler, A. G. Richmond, J. B. Sharp ; R. O. F. Tilleke, W. H. Dryland, H. B. Lyne, G. W. B. Bateman, C. A. Clarke.

Guy's v. Woolwich Garrison

PLAYED at Woolwich on Saturday, October 10th. In this game the Hospital played up rather better, the defence in particular being good and getting through a large amount of work. Hayward and Carrell combining admirably. In the forward line too much was left to Lyne, who, mainly through individual effort, scored four excellent goals. There were too few co-ordinated movements, however, and much of the passing was inaccurate, and clean stick work was conspicuous by its absence. Against better sides the wing halves and inside forwards will have to exert themselves a great deal more. Nevertheless the result was promising. Lyne scored 4 goals, Dryland 2, and Wright and Tilleke 1 each.

Result.—Guy's, 8 goals ; Woolwich Garrison, 1 goal.

Team.—H. V. Brown ; G. N. Carrell, F. Hayward (Capt.) ; E. Walker, A. G. Richmond, S. M. Tinkler ; R. O. F. Tilleke, W. H. Dryland, H. O. Lyne, S. W. Wright, C. A. Clarke.

Golf

THIS match was played against St. Thomas's at West Hill Golf Club on Wednesday, September 30th, and resulted in a win for St. Thomas's by 8 matches to 4.

Results :—

FOURSOMES

Guy's		*St. Thomas's*
H. C. A. Weighell & D. A. Ibbetson	0	J. N. N. Robinson & A. H. Knowles (5&3) 1
M. W. Pilcher & W. C. Kendrick	0	L. G. Taylor & E. H. C. Harper (3&1) 1
H. B. Thornton & B. J. Doran	½	D. R. Stein & Carlyle-Gall ½
G. O. Jelly & P. H. Lomax (6&5)	1	L. H. B. Light & P. J. W. Milligar 0

SINGLES

Guy's		*St. Thomas's*
H. C. A. Weighell	0	J. N. N. Robinson (Capt.) (3 & 1) 1
B. J. Doran	0	A. H. Knowles (5&3) 1
W. C. Kendrick	0	E. H. C. Harper (2 up) 1
G. O. Jelly (Capt.)	0	L. G. Taylor (1 up) 1
M. W. Pilcher (1 up)	1	D. R. Stein 0
D. A. Ibbetson (6&5)	1	L. H. B. Light 0
H. B. Thornton	0	P. J. W. Milligan (3 & 2) 1
P. H. Lomax	½	Carlyle-Gale ½

Hospital Information, etc.

Appointment

S. V. Strong, M.B., B.S., Hon. Assistant Physician, King Edward VII Hospital, Windsor.

Change of Address

T. R. Atkinson, M.D., Tregenna, Warwick Road, Beaconsfield, Bucks.

S. C. Brown, L.D.S., R.C.S. (Eng.), Stirling Lodge, Richmond Park Road, Bournemouth.

E. H. Roche, M.D., 457, Mount Eden Road, Auckland, New Zealand.

H. J. Spon, M.R.C.S., L.R.C.P., D.P.H., 6, Via Cavour, Ospedaletti, Italy. *San Remo* 4014.

Papers by Guy's Men

J. D. Cambrook. Special tray for edentulous plaster impressions. *Brit. J. Dent. Sci.*, lxxvi, 1931, 229.

A. C. Hampson. Anæmias of infancy and childhood. *Pract.*, cxxvii, 1931, 460.

R. S. Harrison. Case of primary aplastic anæmia treated with 150 transfusions in four years. *Clin. J.*, lx, 1931, 475.

F. J. Pearce. Problem of pulpless tooth. *Brit. Dent. J.*, lii, 1931, 389.

I. B. Morris. Consecutive autopsies of unusual interest. *Lancet*, 1931, ii, 737.

C. P. Symonds. Physiology of painful sensation in relation to some clinical problems in neurology. *Lancet*, 1931, ii, 723.

L. J. Witts. Simple achlorhydric anæmia and allied forms of anæmia. *Pract.*, 1931, cxxvii, 439.

Birth

BARRY.—On July 31st, 1931, at Amberley, Tadworth, to Sybil Margaret (née Osborne), wife of H. C. Barry—a son (Michael).

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

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PASSIM

AT recent Going-off Dinners there has been a noticeable air of quietness and sobriety, which has caused surprise to some members of the Staff who happened to be present at these functions. Indeed, they were heard to remark on the improvement in the manners and deportment of the Residents. But when they were informed that bread was still occasionally thrown about at the Residents' table, they expressed surprise at such unseemly hilarity.

However, although the present-day going-off dinners may lack heartiness and enthusiasm, the Biennial Dinner held a few days ago at the Connaught Rooms was not deficient in any of these qualities. Perhaps it was the " no speeches " rule which contributed to the great success of the proceedings, for the 287 men who were present certainly gave evidence that they were enjoying themselves. Perhaps some of them were endeavouring to emulate their deeds at past going-off dinners, but, nevertheless, the whole-hearted success of the occasion must be a source of satisfaction to the Chairman (Mr. Steward) and the Secretary (Dr. Marshall).

The post-graduate course, which extended over a period of two days preceding the dinner, must also be mentioned, for this appears to have been both well attended and much appreciated. No doubt this will now become a permanent part of the Biennial festivities.

WE would like to draw the attention of our readers to the annual effort which is now being made by a worthy society to raise funds for charity. We refer to the Stock Exchange Dramatic and Operatic Society, who, through the sale of their " Help Yourself " Annual, have succeeded in providing charitable assistance for many institutions at Christmas time. The proceeds of all those Annuals sold at Guy's go directly to the Hospital, which last year benefited to the extent of £525. These Annuals are now available, and we would suggest that those who have not already purchased one should lose no time in doing so. We would also advise purchasers to keep carefully their numbered receipts, for there are 2,336 free gifts to be allocated, which cover a wide range. For instance, for the modest expenditure of 2*s.* 6*d.* the price of an Annual, one may become the proud possessor of an Austin motor car. This, of course, would appeal especially to those of us who are considering launching out into general practice. Or yet again, a cake of soap and towel, for which the owner has no further use, is being offered. We feel that these might be of use to those interested in the hiking movement. For those who contemplate furnishing a house, there is a varied selection of gifts, such as a sideboard, a sunshine kitchen, or a live pig. The pleasure seeker also is not forgotten, for he may obtain a fortnight's holiday for two at Torquay, a dinner and dance at the Savoy, or a week-end at Brighton. Indeed, the gifts are many and varied, and encourage the support of the movement as much as does the worthiness of its object.

WE note with satisfaction that the Students' Club Committee is making every effort to keep pace with modern times and improvements. Having a short time ago introduced draught beer into the

College dining-room, they have now provided a brand-new armchair for the reading-room. This generous act brings the grand total of these luxuries up to four, and we may now look forward to the time when we will no longer have cause to regard with envy the comforts provided for the student in other institutions more modern and up-to-date than our own.

THE subscription list towards the testimonial for Mrs. Sturgess is to be closed shortly, and further contributions should be forwarded to the *Gazette* office at an early date.

THE following appointments have been confirmed by the House Committee :—

House-Physicians—
To Dr. Hurst—Mr. D. W. James.
To Dr. Mutch—Mr. K. S. Southam.

House-Surgeons—
To Mr. Steward—Mr. A. R. Clarke.
To Mr. Rowlands—Mr. C. J. C. Siggers.

Out-Patient Officers—
Mr. J. S. Batchelor.
Mr. D. Erskine.
Mr. G. F. Lashmore.
Mr. G. A. M. Lintott.

Assistant House-Surgeons—
To Mr. Hughes—Mr. J. C. Wharton.
To Mr. Davies-Colley—Mr. T. F. Todd.
To Mr. Bromley—Mr. W. H. Greany.
To Mr. Slesinger—Mr. E. Sharp.
To Mr. Ogilvie—Mr. J. Carlton.

Obstetric Residents—
To Mr. Chapple—Mr. N. S. Plummer.
To Mr. McNair and Mr. Cook—Mr. O. Ive.

House-Physician. Children—
Mr. J. B. Schofield.

House Physician, Nerves—
Mr. C. H. Rogerson.

House-Surgeon—
To Mr. Mollison—Mr. D. Stone.

General Practice

A Lecture delivered by Dr. A. H Douthwaite, at Guy's Hospital, September 4th, 1931

PART II

INTRODUCTION

THIS, let me tell you, is the most unpleasant experience in the whole process of settling down to practice if one is about to take the place of a popular family doctor. In the nature of things you cannot expect to be warmly welcomed; in fact, at times the lack of cordiality in one's reception may be depressing in the extreme. At the end of a day, having been introduced to, perhaps, 12 families, having been left outside another dozen houses whose occupants are not agog to meet one, having been gazed upon, catechised, and put in one's place by references to the doctor whose place " of course you cannot hope to fill," and having made conversation in house after house with people of whose interests you know nothing, the initiate will return to his temporary abode exhausted in spirit. And this goes on day after day. As the time approaches for you to enter the partnership, the outgoing member will shelve more and more of his visits on to you, thus enabling gradual acquisition of an independent visiting list. If the introduction be done conscientiously, it is probable that quite 80 per cent. of the patients will transfer their allegiance to the newcomer.

During the introductory period, *i.e.*, before you are a partner, you should be paid an agreed sum for your living and running expenses by the firm. The amount must, of course, depend upon the cost of your temporary residence, the question of whether you are single, or married, and so forth.

At the end of, or at any time during, this period you may withdraw, or be asked to withdraw, if you are found unsuitable.

Assuming that you have now become established in practice, you will at first have a good deal of time on your hands because many of your predecessor's patients, although not leaving the firm, will go, for a time at any rate, to one of the other partners. They will drift back in time, provided that there has been no great increase in mortality in the practice you have retained. Again, many patients recover miraculously when their beloved doctor has departed, and remain well until they have heard sufficient good of the new man to encourage a relapse. During this slack period you can, however, be of great value by undertaking the various laboratory investigations of test meals, fæces, sputa, and blood which are required by your partners, who have long been too busy so to occupy themselves.

The first year in practice is in many ways the best, not only because of the time available to study early symptoms, but also because of the necessary re-arrangement of one's ideas when constantly in contact with lay people who are uninterested in academic ability, but assess a doctor on his personality and tact. It is a valuable lesson to observe experienced general practitioners at work, and to realise with what uncanny accuracy they appreciate at a glance the patient's mental reaction to the complaint for which they have been called in. This point is far more essential to success than the attainment of high distinctions.

On the impression made in the first year will depend the ultimate success or failure of the venture. I will, therefore, give you a few hints which may help in overcoming the difficulties inherent in every new job. Many of these details will appear obvious, but that their enumeration is justifiable I can assure you as the result of observation of many and varied practices.

DETAILS OF PRACTICE

A.—*Apparatus to be taken on the round.* Only a doctor with a small practice can afford the time to start on his rounds equipped with no more than a stethoscope. In any case it gives a bad impression to have to return home to collect up a sphygmomanometer, and ultimately leads to shirking essential investigations. Two bags should be carried in the car, one medical, one surgical. The former should contain a stethoscope, sphygmomanometer, jerk hammer, ophthalmoscope, electrical equipment for examination of nose, throat and ear, hypodermic syringe and needles in alcohol, iodine, amyl nitrite, adrenalin, morphine, atropine, aspirin and an hypnotic, wool, finger-stalls and a purgative. The majority of drugs for subcutaneous administration can be obtained in tablet form (ampoules are expensive), and in emergency be dissolved in hot water from the tap and injected by means of the syringe stored in alcohol with no fear of sepsis.

The surgical bag should contain scalpel and forceps in spirit, iodine, wool, gauze, bandages, venesection needle, ampoules of local anæsthetic, catheters, sutures, ethyl chloride, chloroform, stomach pump, ear syringe, pneumatic tourniquet, rubber gloves, oiled silk, picric acid, and a tube of sterile lubricant.

Always keep ready at hand a small attaché case containing essentials for anæsthesia and a properly equipped midwifery bag.

Such apparatus as hæmacytometer, lumbar puncture needle, Wassermann tubes, is required sufficiently seldom to justify exclusion from the case in daily use.

B. *Undesirable habits* (a) *of doctor.*

(1) Paying unnecessary visits. This is a sin frequently committed, and resented by patients almost as much as—

(2) Paying too few visits. This is usually the fault of the junior doctor who bases the number of calls on the nature of the disease, and ceases calling as soon as convalescence has started. Many patients, particularly elderly women, like to be "helped to regain their strength," and apparently the visits of the doctor aid in achieving this happy end.

(3) Habitually paying calls at meal-times.

(4) Calling to see a child long after its normal bed-time.

(5) Accepting alcoholic refreshment when engaged in routine visits.

(6) Smoking on round.

(7) Being too jovial. Although the majority of patients demands cheerfulness, it must be tempered by the right amount of solicitude. Cracking jokes is not for the younger doctor. If your senior partner dares to call his 70-year-old ladies by their Christian names, flatter them for their night wear, and so forth, do not emulate his example—not until you in your turn are the senior.

(8) Servility of the doctor towards his patients is an attitude developed generally as the result of greed. It is evidenced by the practitioner virtually allowing his conduct of the case to be directed by the patient, who may demand to be visited first on the round, or late at night, without regard to the convenience of others, and may insist on drugs when not indicated, refuse to carry out any part of a course of treatment which may be irksome, and so on. To acquiesce is to put yourself in an ignominious position for the sake of holding on to a patient who will never be a credit and certainly despise you. To see some men fawning on their "best" patients as they call them is as nauseating as the obsequiousness of a waiter, and, for that matter, dictated by very much the same reason. There is nothing that a patient really admires more than absolute firmness of advice and insistance on its being followed. "Take it or leave it" is the right line to adopt, provided that you yourself are sure of your ground, and will bring you respect and a large practice.

(9) Unpunctuality. I recognise that it is impossible to be punctual for specially arranged visits when at any moment you may be held up by an emergency or maternity case; nevertheless, as a whole it is easy to call on patients within an hour of the proposed time. If your case is not confined to the house, think how maddening it

must be to wait in all day for a doctor who, having promised a morning call, turns up at 7 p.m. The secret of punctuality lies in working out a morning, afternoon and evening round before starting forth. Each round should, in fact, be very approximately a circle, thereby economising time, energy and petrol, and enabling one to get back to meals at the appointed hour. This is also most important for health, and usually quite possible.

(10) Lack of Method. Untidiness of mind and consulting-room wastes time and annoys patients. The worst and common mistake is to fail to note special appointments immediately they are made. A doctor who habitually forgets to turn up to administer gas to his patients is maddening both to apprehensive sufferer and busy dentist.

(a) *Of patient.*

(1) Keeping the doctor waiting downstairs whilst she dons boudoir cap and powders face.

(2) Being fully dressed when she has been particularly requested to be in bed for the purpose of general examination.

(3) Using telephone for the purpose of obtaining gratuitous advice. Only in very exceptional cases should this be given, because you make yourself legally responsible for a case which you may never have seen.

(4) Making night, Sunday and " urgency " calls without justification. There is no remedy for this. The majority are made in good faith backed by stupidity. Many are the direct result of thoughtlessness, others of avarice, the parents hoping all day that the child will recover without the doctor's aid, and finally becoming panic-stricken when delirium disturbs its slumbers. For the type of patient who calls you at 1 a.m. because she has felt faint after too hot a bath I counsel you to charge quadruple your usual fee. This will stop the nuisance, or lose you the patient —both desirable ends.

If you have your practice well in hand you can, as a matter of fact, educate patients to remember that even a doctor requires food and sleep occasionally.

As a gentle reproof to those who make unnecessary demands on Sundays, a doctor whom I know wears plus-fours on these days. Apparently he never plays golf, but his sporting appearance brings home the fact that he also needs relaxation. Contrition and apologies are, he assures me, usually forthcoming.

(5) Asking the doctor about his religious convictions, if any, and following this up with gratuitous advice on spiritual matters. This is a common impertinence in small towns largely populated by superannuated spinsters. I was subjected to it for one hour whilst attempting to make some leeches, with rather refined tastes, bite an old lady. She has no longer to depend on faith.

C. *Of relatives and friends.*

The subject is inexhaustible. The more distant the relationship, the more doubtful the friendship, the more will they worry you for further and yet further information on the disease in question. A peculiar combination of horror and ghoulish anticipation is to be noted in certain women inquiring about the health of their elderly aunts (particularly if rich). They are not satisfied with a simple explanation, such as gall-stones, but hanker after cancer (spoken in an awed voice). Should that, in fact, be present, the satisfaction which they derive from " I knew there was something like that; I've always thought she looked as if she had a cancer," is positively disconcerting.

The following are a few of the trials to which one is subjected by relatives :—

(1) Stopping the doctor at various stages of his descent from bedroom to front door by members of the family to repeat all that he has already told the patient. Moral: Always collect the entire family before delivering your weighty verdict. Be putting on your overcoat whilst you are talking. It saves time and obviates the impression that there are no other patients to visit (this advice is for troublesome households only).

(2) Taking patient from a sanatorium, to which he has been admitted by your efforts, on the grounds that they are sure the patient will be depressed, or catch the disease in worse form from others.

(3) Calling in a consultant and fixing the time of the consultation (usually Sunday afternoon) before mentioning the matter to the general practitioner. I hasten to add that the consultant is not always to blame. He has probably been told that the doctor has requested the family to fix up the meeting.

(4) Deliberately attempting to create discord between fellow practitioners. In all fairness I must say that this is not common, but the following experience is sufficiently remarkable to justify description. Scene: a small house, of which the windows had been tightly closed for many years. Occupants: mother, deserted by husband, confined to her room ever since. A *malade imaginaire*, except for hæmorrhoids, of which she never tired of supplying revolting details. Sick daughter of 20 (the patient), whose life had been spent tending to her mother's sole physical disability. Two other air- and sun-starved daughters suffering from the tyranny of mother. Several cats and dogs.

To this I was called to examine the daughter, who, I was told, had no doctor in the town. The

patient was a thin, whining, bloodless creature with signs of tuberculous mesenteric glands.

Having given the diagnosis, I was asked whether I was sure the case was not one of appendicitis. To this I replied in the affirmative. I was then informed that a local practitioner had been in attendance, and was, in fact, shut up in one of the other rooms of the house so that I should not meet him and be influenced in my judgment! Not only that, but a surgeon from a neighbouring town was likewise confined to yet another room. He was in disgrace because, having been sent for with a query of appendicitis, he had dared to bring a bag of instruments. This showed that he had made up his mind to operate before seeing the patient! Before all this was revealed to me I was asked to telephone for a London consulting surgeon, who was on holiday in the town, but mother sat by the telephone to prevent any attempt at mentioning an opinion on diagnosis. I left soon after this, but heard that he went through the same process, and the various semi-asphyxiated doctors met eventually outside in the street! Fortunately we possessed a sense of humour, and I am beginning to suspect that the old woman did also.

(5) Unjustifiable curiosity. It may seem incredible to you, but it has occurred to me and many others who have had an experience of general practice to be accosted by inquisitive old ladies, probably in no way directly interested in the house you have visited, with the question: "Doctor, what exactly is the matter with Mrs. So-and-so?" Now when you are attempting to build a reputation for yourself in a small town you are torn between the desire to tell such a woman to mind her own business and the wish to be polite lest she pass it round the town that your manners are not becoming to your profession. In your early days I should advise you to hedge on the matter, pointing out that, although you are debarred from answering such questions, yet you feel sure that, as she is such a great friend of the family, they will be only too pleased to give her full details should she care to call. Later, when you are established, I think this is one of the rare occasions when one may justifiably be rude.

(6) Gossiping. The greatest curse of small towns is the wagging tongues at bridge parties. The doctor, the curate, and "blood pressure" were the popular topics when I was in practice, but no doubt the theme varies slightly from year to year. The most extravagant statements are made about the wretched recipient of the party's interest. Usually starting with the suggestion of somebody's death being the result of the doctor's carelessness, the afternoon rarely finishes without veiled references to moral deviations which so shock and yet delight these wilted relics of Victorian inhibitions. Should you ever be the victim, and obtain sufficient proof of slander, do not hesitate to claim heavy damages. You will get them, and teach the prurient-minded gossips a salutary lesson.

(7) Using the doctor's authority for nefarious ends. One may forbid visitors to a very sick patient, and a resident daughter may employ this veto to prevent access of equally close relations. In the meantime she induces the semi-responsible invalid to make out a will entirely in her favour.

C. *Miscellaneous.*

(1) Examination of patients. During the rush months of the year, namely, January to March inclusive, it is absolutely necessary to economise time in order to get through the day's work. The most prolific source of wastage is the dressing and undressing of patients in one's consulting-room. Should, therefore, a case present itself for which it is obvious that a general overhaul is required, it is far better to arrange that the patient shall be in bed at a stipulated time and to pay her a call. Five minutes, even in these days of scanty clothing, is probably a conservative estimate for clothing and unclothing, and if this be multiplied by ten for each of the two surgery hours of the day you will realise that the advice is worthy of consideration. On the other hand, the time necessary to get from your car to bedroom is one to three minutes, according to the degree of sluggishness of the door opener.

I have already emphasised the need of a planned round which should, as far as possible, be arranged so that the car (unless chauffeur-driven) need not be reversed when leaving one house for the next.

Whilst on the question of time-saving let me draw your attention to the fact that in a round comprised of 40 calls the total time spent in taking off and putting on and buttoning an overcoat is approximately half an hour, *i.e.*, the visiting time for two short cases.

As to the examination of women, theoretically we should always have a relative or nurse in the room, but this is not always practicable or necessary. The danger of accusation of infamous conduct is a real but remote one, and a doctor who has an eye for the mentally abnormal patient will be warned at a glance. The most difficult and not uncommon problem of this sort is presented by the unmarried girl who complains of amenorrhœa. If she comes alone, the diagnosis is pretty certain, but then you must insist on a friend or a nurse being present before proceeding to examine. A

much more unpleasant experience is to have this type of patient brought to one by her mother. I need hardly say how ultra-careful you should be before giving the diagnosis. A friend of mine in practice found himself in this situation. While examining the chest he observed mammary secretion, and the abdomen revealed a pelvic tumour. Amenorrhœa was the symptom. By a stroke of good fortune he temporised, sent the girl to a specialist, and heard that she had, in fact, an ovarian tumour!

Never omit to carry out a complete examination, if indicated, for fear of causing embarrassment to patients whom you may meet socially as well as professionally. You will be to blame if a serious oversight results, and, in any case, it is extremely rare for any objection to be raised to pelvic examination by the educated classes.

(2) Diagnosis. The greatest difference between hospital and general practice is that the latter offers the study of diseases at their inception. One soon learns that many maladies cannot be diagnosed during the first day or so of their appearance, particularly febrile illnesses in children. Worrying as this is to doctor and patient, nevertheless it has compensation in vastly enhancing the interest of one's work and offering scope for research. Again, the opportunity of studying disease in its infancy, unrestricted by the artificial barriers of specialities, is the reason why a first-class general practitioner is necessarily a better doctor than the best consultant.

The question naturally arises: "When faced with these early cases shall I admit ignorance of the cause, or shall I apply a temporary label?" Clearly the answer must depend upon many features, particularly the intelligence of the patient or parent. It is not always wrong to bluff, provided that you don't bluff yourself into a serene acceptance of a doubtful diagnosis.

A patient who says he wants to know the trouble, no matter how unpleasant, seldom means it. Very occasionally one has to give a hopeless verdict to the sufferer, but only if it is absolutely essential that he should thus be enabled so to arrange his affairs as to leave his dependents well cared for. The mental torture suffered by those who know they have cancer is indescribable. It is almost as bad if they think that they are not being told the truth, and so I urge that if you have decided to withhold the diagnosis, do the job properly. Give a definite, though fallacious, opinion and lie wholeheartedly, and see to it that the family does the same. How often are one's best efforts frustrated by the lack of self-control of a sorrowing relative.

(3) Prescription writing. The most comforting information I can give you on this subject is that the chemist rings up before dispensing your explosive, or otherwise incompatible mixture. Chemists are a tactful race. They will tell the patient to come back in a few hours for the medicine because it will take a long time to make up on account of its rarity and excellence. The patient is pleased, the doctor is warned, the offending substance is omitted.

In point of fact, prescription writing is not difficult. The serious incompatibilities can be learned in an hour. Try to avoid relying on stock mixtures, such as you have used in hospital. They are necessary in big institutions, but tend to induce prescribing without thought of the pharmacological principles involved.

Remember that menthol, methyl salicylate, alcoholic preparations and many other substances are expensive. Keep a copy of all prescriptions, or have printed on the paper, "Please bring this prescription with you."

(4) Diet. Every sick patient wants a diet even more than a diagnosis. I do not necessarily mean that he needs one. The diet must be given in detail. The terms "light diet," diets "low in carbohydrates, fats or proteins" convey nothing. It is rather a question of junket *versus* custard, red mullet *v.* trout! Admitting this as a slight exaggeration, I do assure you that it is worth while thinking in terms of food rather than diets. If you don't know the seasons for asparagus, strawberries, or green peas, find out from your wife or housekeeper at the beginning of each month. If you object that such detail is unnecessary from the point of view of treatment, in the main I agree, but point out that general practice consists of the practice of medicine plus the treatment of people as opposed to their diseases. Attention to detail inspires confidence, and confidence plays a greater part in cure than most drugs. Always make a note of the diet you have advised, otherwise you will assuredly get into difficulties.

(5) Details of Patient's Life: Dietetic and Occupational. For certain diseases, pre-eminently angina pectoris, a knowledge of a patient's daily routine is an essential preliminary to successful treatment. Where restrictions have to be imposed, write them down.

(6) Schools. To be a doctor to a school carries with it many obvious advantages and great cares. The school authorities are, or should be, keenly alive to the responsibility entailed by the supervision of the children of parents who may be many miles away. Some smaller schools, fearful for their reputation of health, or anxious to avoid additions to the bills, take upon themselves,

through the medium of a matron, the treatment of all illnesses which she is pleased to regard as trivial. Castor oil for stomach ache is the classical example. When the child has general peritonitis you will be called in and expected to "cover" the school. Don't.

If in doubt as to the nature of a febrile illness in a school child insist on isolation.

If you are uncertain of the best method of controlling an epidemic, call in the local Medical Officer of Health. He is there to help you. Abortive forms of scarlet fever are atrociously common.

(7) Hotels. Most hotel managers have one doctor whom they call to sick guests. There are doctors who have been known to solicit such favours, just as a tradesman solicits the custom of new arrivals. I know one man who promised to visit any of the hotel staff on his panel in order to save the time they would have to take off to attend his surgery, if he might be called in to the guests! His practice is very small.

Remember the damage that can be done to an hotel by the incautious management of an infective case.

Never answer the questions of the old ladies in the lounge about the nature of the illness.

Do not move a simple case from an hotel to a nursing home simply to suit your own convenience.

Hotel residents provide the highest percentage of bad debts.

(8) Tuberculosis. In the many instances when you will suspect a tuberculous basis for a disease, do not commit yourself to the diagnosis, even though you treat the patient appropriately. Never send a patient to a sanatorium unless convinced that such treatment is really necessary. Your patient may be unable to insure his life for years afterwards as the result of a possibly wrong diagnosis, and the very mention of a sanatorium renders most insurance companies extremely shy.

(9) X-Rays. If you think an X-ray examination necessary and if the patient refuse, repeat your advice in writing and keep a copy of the letter.

(10) Caution in Treatment. Before venesecting an apparently moribund patient, indicate to the relatives the probability of death in the absence of treatment, and possibility in spite of it. Otherwise the lay mind is only too apt to associate blood-letting with untimely demise. Be sparing with the lumbar puncture needle, and remember the necessity of recumbency afterwards. Private patients always develop worse headaches than do those at hospital.

(11) Difficult Types of Patient.

(*a*) Occult nervousness. This is most difficult to detect in the male. It is usually met in the middle-aged individual who prefaces his complaint by the statement: "I really don't know why I have come to you, but . . ." He will give you the minimum amount of information, but be sure that a busy man will not waste his time unless he has some real fear which he dreads to express. The typical example is the anginal patient who states that he has a little indigestion.

Women, not obviously neurotic, and yet with vague symptoms usually fear cancer, but are afraid to appear ludicrous by admitting it. They are greatly influenced by seeing, or hearing of, a friend with this trouble.

(*b*) Mutual nervousness. There are few sights more deplorable than that of an elderly man and wife both watching the other for signs of disease. It is usually found in the childless. I have been called in the middle of the night to a man because his wife found that his pulse was 82! He had lived a bathchair life for two years, and recovered completely when induced to go away for a holiday alone. A year ago I was passing through the town and saw once again the patient in his bathchair being pushed by his over-devoted wife, who, the man assured me, was gradually killing herself by her never-ceasing nursing activities. It transpired that someone had X-rayed his colon and found a kink in the sigmoid. The wife was washing out the bowel twice daily!

(*c*) Lunacy. Unless you have a bent in this direction, I mean towards its study, call in the nearest expert for purposes of certification. There are too many legal risks attached to it.

(*d*) Very old patients, *i.e.*, 70 to 98 years of age. Amongst their many peculiarities may be mentioned a tendency to recurrent atony of the bowel with distension, often leading to the suspicion of obstruction by growth. Profuse bleeding apparently from the colon, presumably purely the result of vascular degeneration; no cause may be found post-mortem.

The rapidity with which seemingly trivial catarrhal infections of the bronchi lead to death with the minimum of physical signs.

The common occurrence of generalised intractable itching of the skin.

The persistence of severe neuralgic pain after an attack of shingles. It occurs at its worst at night time, practically never disappears in those over 60, and often causes such exhaustion as to lead to death.

The vampire-like attachment of aged parents, particularly mothers, to the only girl of the family. With the selfishness of old age they demand constant nursing by the unfortunate daughter, even though in the position to have the services of a nurse, and, dying as they approach the

centenary, leave the " girl " of 40 a colourless and frustrated remnant of her former self. The renunciation of all the pleasures which life holds, in a mistaken sense of duty, is one of the most pitiful sights of general practice. Fortunately this Victorian tradition is dying out, and, with it, the neuroticism of the middle-aged spinster.

(11) Note-Taking. Really one should keep notes of every case. In practice it is seldom possible to make more than scanty references to many ailments. Half an hour at the end of the day devoted to dictation to a shorthand-typist (2*s*. 6*d*. per hour) will enable you, however, to keep reasonably good records and, also, copies of letters which you may need.

(12) Post-mortems and Certificates of Death. In large cities the performance of a post-mortem examination offers no greater difficulties than those which are encountered in hospital. In small towns, on the other hand, the practitioner is provided with no regular assistant, and must eviscerate the body, determine the cause of death, and finally sew and clean up. To anyone devoid of experience in the necessary technique the task is a formidable one. The time which must be devoted to an autopsy may completely disorganise the day's work. For this reason many patients are buried on the strength of a worthless certificate from a doctor who simply cannot spare the time for the post-mortem which might be demanded should his doubts as to cause of death be reported to the coroner. It is this again which renders the poisoning of invalids such a simple matter. Think of the frequency with which patients suffering from a lingering malady can be helped to the final exitus by impatient relatives, who are sure of obtaining a certificate from the doctor who may not have attended the house for a fortnight.

The disadvantage of general practice is the difficulty of obtaining permission for post-mortem examinations where the exact nature of the disease is in doubt, yet where there is no cause to report the matter to the coroner. A valuable aid to the acquirement of knowledge is thus lost.

Perhaps a dozen times a year one is required to verify a death by severing a blood vessel. Bear in mind that blood trickles from the cut vein of a corpse and leaves a stain on the nightdress which might distress a hypersensitive relative. Do not, therefore, rely on a sharp jab with a penknife, but make a proper incision near the elbow, and follow this by a firm bandage over wool. The dressing will not be noticed in this situation.

(13) Midwifery. I have already referred to the importance of attaining proficiency in the art of the accoucheur before leaving hospital, yet many of the valuable lessons which we have been taught cannot always be carried out in the exigencies of a general practitioner's life. Ante-natal examination is not one of these, however, and should be made a *sine qua non* of accepting the case. Many expectant women still regard it as unnecessary, and are supported in their belief by their mothers, who " never had this fuss made over any of their pregnancies." Clearly it is only reasonable to state a fee which shall include all pre-natal examinations, thus leaving the doctor a free hand to call as often as he thinks fit.

The art of directing the administration of an anæsthetic by a nurse, whilst one is coaxing a recalcitrant fœtal head, is one which can be acquired by practice only. Fortunately most nurses err on the side of meagreness when handling a chloroform bottle.

From time to time the general practitioner is subjected to reproofs in our journals for his readiness to apply forceps. He is accused of forcibly terminating labour in order to suit his own convenience. When reading such articles I always wish that the accusing pundits could have a year's experience of conducting maternity cases in combination with general practice instead of as an isolated speciality. The following example of a doctor's difficulties is in no way exaggerated. Called to a maternity case when in the middle of a morning round, with another 40 visits and " surgery " to deal with. Finds the call is premature, starts off on round again. Gets home for lunch, but has to go straight off for an emergency five miles out. Is rung up when he reaches his destination with message that the baby is well on the way and the mother in agony. Doctor rings up partners to help him out. One is off duty and away for the afternoon, the other is operating. The case in the country has acute otitis media. Doctor administers anæsthetic and punctures drum unaided, and dashes back to original patient. She is in much pain, but making slow though normal progress. In the meantime the doctor's waiting-room is full of irritable patients waiting for the afternoon consultations.

In this position you would have two alternatives. Either to give chloroform, deliver the child in a few minutes with forceps and slightly increase the danger of complications, or stay with the case for another hour, administering anæsthetics from time to time and eventually bring the labour to a natural termination. If you adopt the latter course you will have infuriated at least 15, possibly 30, waiting patients, have disorganised your work for the rest of the day as well, and have laid the foundation of a duodenal ulcer by the combined factors of overwork, worry and lack of food. Please note that this might happen two or three times a week.

Add to this the fact that many doctors have to give ante-natal, post-natal and accouchement services for a fee of less than five guineas, and you will agree that there are times when a general practitioner is justified in the early application of forceps even in the absence of text-book indications.

(14) Neither give professional advice nor treat your own relatives for the following reasons :—

(*a*) your judgment will be warped by your anxiety (if any) for their recovery.

(*b*) Every sick patient instinctively wishes to place utter reliance on his medical attendant. This is rarely possible for people who have known the doctor in adolescence.

(*c*) Should the patient be a member of the doctor's family he will have to talk " shop " even at meal-times.

(*d*) To treat medically or surgically any member of your family (trivial ailments excluded) implies a belief that no other available doctor could do it so well. This is seldom the case.

The General Medical Council

An Address delivered at the opening of the Winter Session of Guy's Hospital, 1931, by Sir Farquhar Buzzard

MR. TREASURER, Ladies and Gentlemen, —Distributing a number of prizes, provided by others, has made me feel generous, and, while the mood is on me, I propose to give away some information on a subject with which I happen to be better acquainted than you are.

My choice of the General Medical Council as a subject for an address on such occasions as this may not be a very popular one, but it can be justified on several grounds, of which I will only mention a few.

In the first place, my words are addressed to you as medical students whose educational curriculum has little room for instruction in regard to the origin, functions and purposes of the General Medical Council. In the second place, you, as students, and still more later on as practitioners, will be expected by the public to know something concerning the discipline and ethical principles of your chosen profession. And thirdly, such knowledge as you may pick up from me will be useful in counteracting the effect of the pernicious nonsense published about the General Medical Council in the columns of the more ignorant, and perhaps less scrupulous, portions of the public press. So great is the prevailing ignorance on the origin and constitution of the General Medical Council that it is often confused by the public and the press with the British Medical Association, and I am obliged, therefore, to draw your attention to the essential differences—congenital, anatomical and physiological—between the two bodies.

The British Medical Association was founded just on a hundred years ago, in 1832, in order to promote the medical and allied sciences, to maintain the honour and interests of the profession, and to foster a feeling of friendship among its members. To achieve these objects it holds meetings for the discussion of medical subjects and professional affairs ; it publishes a weekly journal which gives a record of progress in scientific medicine and of medico-political activities ; it maintains a reference and lending library, and it has instituted lectures and scholarships and grants for research. In other words, the British Medical Association is a body founded by medical men in order to secure combined action and progress in all matters, whether scientific, economic or sociological, relating to the profession. In spite of the fact that it is a purely voluntary association, to which none of the 55,000 medical men and medical women on the Register need belong, it has a membership exceeding 35,000.

It was not until 26 years after the foundation of the British Medical Association, namely, in 1858, that it dawned on the community that the interests of *patients* should also be specifically safeguarded. In that year the Medical Act was passed by Parliament and became law, an Act the preamble of which indicates, in no vague terms, the objects for which it was drafted. This is the preamble :—

> " Whereas it is expedient that persons requiring medical aid should be enabled to distinguish qualified from unqualified practitioners : Be it therefore enacted by the Queen's Most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and the Authority of the same, as follows."

This Act established the General Medical Council, whose full title was, and is, " The General Council of Medical Education and Registration of the United Kingdom."

I will not weary you with the full text of the Act, but will be content to draw your attention to certain of its important provisions. The Council consists of 18 members appointed by the Universities in the United Kingdom having medical

faculties; of nine members appointed by Medical Corporations—such as the Royal Colleges of Physicians and Surgeons; of five members appointed by His Majesty in Council; of six members directly elected by members of the profession as a whole, a total of 38. Of this number it should be noted that only 15 are necessarily medical men, although only one layman has, so far, been appointed, by the Privy Council in 1926.

The Council's principal functions are three in number: (1) To keep the Medical Register and publish it so that any member of the public can ascertain whether a practitioner is registered or not; (2) to see that the name of no person is entered on the Register unless he has had an adequate professional education, and to remove from it the names of qualified persons who are no longer entitled to public confidence, and (3) to provide for the publication of the *British Pharmacopœia*.

As to its educational functions, the Council has no powers to make rules in regard to the medical curriculum or examinations, but it can pass resolutions and make recommendations relating thereto, and if any of these were ignored by the licensing bodies, it would be open to the Council to make representations to the Privy Council which, if it thought fit, might order that the qualifications obtained from such bodies should not be registrable.

The Privy Council has also the power of prohibiting any attempts to impose restrictions as to any theory of medicine or surgery by bodies entitled to grant certificates, so that, once a practitioner has been trained and tested in the knowledge essential for public safety, he may adopt any theory in which he honestly believes.

Further, the Medical Acts do not prohibit the practice of medicine by unregistered persons, although the latter are handicapped by not being able to sue for fees in a Court of law, by being unable to give valid certificates required by any Act of Parliament—such as a death certificate—and by being ineligible for appointments as medical officers in the Services. In other words, anyone can practise medicine and surgery, provided that he does not deceive his patients by falsely representing that he has qualifications to which he has no title, or that he is registered when such is not the case.

It cannot be disputed that the provisions of the Medical Acts to which I have so far referred are made expressly for the protection and benefit of the public, and that they impose no serious restrictions on such members of the public who do not seek the protection offered from being treated by qualified or unqualified persons not on the Register. As a matter of fact we know that the latter course is being pursued by the public in countless instances, especially by those members of the community to whom heterodoxy is always attractive, or who do not regard the motto "Safety first" as important in matters of health.

Further than that, the General Medical Council has no power to erase the name of a practitioner from the Register if he adopts any theory in his practice, however contradictory to the principles in which he has been trained. For instance, he may practise homœpathy, osteopathy, naturapathy, chiropractic, sanipractic, and all the other pathies and practics which, during the short tenure of their lives, feed on the pathetic credulity of mankind. It is quite a good rule, on general principles; the only comment one has to make in that regard is that it enables a medical practitioner who has passed through the orthodox medical training and who has, presumably, acquired a large amount of scientific knowledge, and perhaps a certain degree of critical faculty, to adopt some "pathy" for the purpose of practice, in which he can express his belief. That is a practice which is, no doubt, advisable from the point of view of the public, but, knowing what the public are, knowing their love of something which is not quite orthodox, it is certainly open to abuse. Fortunately, only a very small number out of the hordes who prey upon the public under these alluring titles have had any medical training worthy of the name, or have made any attempt to become either duly qualified or registered. For this reason they rarely concern the General Medical Council.

So much for the constitution and functions of that body. Let me now pass on to a consideration of its organisation and procedure. As I have already intimated, it is not the General Medical Council, but the Privy Council which decides what examinations for medical students are adequate for the safety of the public, what examinations the passing of which shall entitle the successful examinee to register as a duly qualified medical practitioner. On the other hand, the Privy Council looks to the General Medical Council for help and advice in making its decisions, and in order that this advisory function may be well carried out there is an Examination Committee which keeps itself informed concerning all the examinations of the medical curriculum conducted by the various licensing bodies throughout the United Kingdom. All such examinations are periodically visited, inspected and reported on by members of the Council appointed for the purpose. The reports are considered by the Examination

Committee, the licensing bodies are invited to make any comments they think fit on the Inspector's reports, to the Examination Committee, and any recommendations made by the latter receive the assent of the General Council before being transmitted to the Privy Council. You will all be relieved to learn that, owing to the smooth working of this machinery, there is no fear of your professional examinations failing to reach the high standard on which you have set your hearts.

The medical curriculum is also continuously under the observation of the General Council through the medium of its Education Committee, and any alterations which appear desirable from time to time in accord with the progress of medical science and knowledge are brought to the notice of the various bodies engaged in the teaching of medical students. It must perhaps be admitted that additions to the intellectual fare which students are expected to assimilate have been more numerous than subtractions, and that the curriculum at the present moment is ripe for revision. On the other hand, questions of public health which are causing general anxiety can be brought to the notice of the General Council by the Privy Council, and alterations in the curriculum directed to allay that anxiety are considered and brought to the notice of the educational authorities. For instance, it may be within your recollection that the question of maternal morbidity and mortality has recently exicted much public interest, that a Departmental Committee of the Ministry of Health considered it, and that the report of the Committee was forwarded by the Council to the General Medical Council. As a result, the latter has recommended certain changes in the medical curriculum destined to increase the amount of time hitherto allotted to the study of obstetrics, in the hope that the practitioner of the future may be still better equipped for his responsibilities in midwifery.

Having described to you the structure of the official ladder by which you may hope to attain registration, let me now take you behind the scenes and explain the various methods by which you may cause your name to be erased from the Register.

The jurisdiction of the Council is conferred by the Medical Act of 1858 in these words :—

" If any registered medical practitioner shall be convicted in England or Ireland of any felony or misdemeanour, or in Scotland of any crime or offence, or shall after due inquiry be judged by the General Council to have been guilty of infamous conduct in any professional respect, the General Council may, if they see fit, direct the Registrar to erase the name of such medical practitioner from the Register."

This sentence makes clear the intention of Parliament that the General Council should keep on its Register the names only of those practitioners who have not forfeited their right to the confidence of the public. It is clear, too, that Parliament considered the General Council the body best fitted to judge what conduct is, and what conduct is not, " infamous in any professional respect." It is not suggested that a press reporter has better qualifications for the task, even though the sale of his paper may be increased by sensational paragraphs on the decisions at which the Council arrives.

Although the interpretation of the Act, and particularly of those words which refer to infamous conduct in any professional respect, is one of heavy and often unenviable responsibility, it can hardly be maintained that the Council, the constitution of which I have already described to you, is likely to be animated by petty professional jealousies, or by the worse features of a trades union policy. Having shared in its deliberations for several years, and having listened to its discussions, wherein there are often differences of opinion on other points, I assert without hesitation that every member regards the protection of the public as his guiding principle and ultimate aim in attempting to solve the difficult problems with which he is confronted.

It is not unnatural that the Council, having dealt with such problems of professional conduct for upwards of 70 years, has from time to time communicated to the profession the general principles which it has adopted, as the result of experience, in deciding what constitutes misconduct sufficiently venial to justify the erasion of a guilty practitioner's name from the Register. These principles are set out in what is published in the Medical Register as the " Warning Notice," a document which *should* be familiar to every member of the profession.

But before examining the Warning Notice in detail let me clear the way by disposing of the more straightforward procedures which come within the sphere of the Council's activity.

When a registered medical practitioner is convicted of a crime or felony the conviction is reported to the Council, who can hardly avoid regarding it as a forfeiture of his right to the confidence of the public. Before his name is erased from the Register, however, he has the opportunity of appearing before the Council and of making his plea against the step being carried out. Needless to say, such pleas are rarely

successful. It would hardly be in the public interest to keep the name of a criminal or felon on the Register. When a registered medical practitioner is convicted of a misdemeanour or offence, such conviction, again, is reported to the Council by the Clerk of the Court, but the subsequent proceedings differ in some ways from those described in cases of felony and crime.

Convictions for drunkenness form a not inconsiderable proportion of these cases, and the attitude of the Council towards the convicted practitioner may be generally described as follows: "You may get drunk and be convicted once, but we warn you that a repetition of the offence will mean your attendance before the Council and an inquiry into your conduct, as the result of which the Council may see fit to erase your name from the Register." At such an inquiry the defendant may have legal representation in the form of a barrister or solicitor, and the procedure resembles, but is not identical with, that of a legal Court. For instance, the Council has no power to make witnesses give evidence on oath, and the President of the Council has a legal assessor sitting with him, to whom he can turn for advice on questions of law.

Speaking generally, practitioners who appear before the Council because they have one or more convictions for drunkenness against their names are dealt with in one of two ways. The first of these is best indicated by the following words addressed to the convicted practitioner: "I have to tell you that the repeated convictions alleged against you in the Notice of Inquiry have been proved to the satisfaction of the Council. These convictions indicate a habit which may be both dangerous to your patients and discreditable to your profession. In order to give you an opportunity for reconsidering your habits and conduct in this respect, the Council have postponed judgment till the session of the Council a year hence. Before that date you will be required to send to the Register of the Council the names of some of your professional brethren or others who may be willing to testify by letter as to your habits and conduct in the interval of a year which will elapse. You will understand that, in the event of any further conviction for a similar offence, the Council may forthwith instruct the Registrar to erase your name from the Medical Registrar." In other words, the practitioner is put on a period of probation for a year.

The second alternative becomes operative in cases in which the Council is satisfied that the practitioner's habit is confirmed, and that he has become a serious danger to the public. The Registrar is instructed to remove the practitioner's name from the Register.

The results of proceedings in the Divorce Court engage the attention of the Council from time to time. The names of practitioners found guilty of adultery are reported to the Council, and the latter has to decide whether such adultery shall be deemed infamous conduct in a professional respect. Adultery of itself is not *necessarily* "infamous conduct in a professional respect," but if the Council is satisfied that the guilty practitioner has abused his position by committing adultery with a woman with whom he stood in professional relationship, the name of the practitioner is usually erased from the Register. These cases are often difficult because "professional relationship" is not always easy to define, but the principle underlying the Council's action is entirely concerned with the protection of the public, recognising the fact that doctors are, by reason of their work, placed in positions of intimate trust and responsibility unknown to members of any other profession. It must be remembered, however, that each case is carefully considered and judged on its own merits, and that any practitioner can apply to have his name restored to the Register after a lapse of time, and has a reasonable chance of success provided he can bring testimony as to his good character in the interval.

The Warning Notice draws attention to the responsibility undertaken by a registered medical practitioner when, in his professional capacity, he gives certificates, notifications, reports and other documents of a kindred character for subsequent use in courts of justice or for administrative purposes. It goes on to say that a doctor who signs or gives under his name and authority any such certificate or document which is untrue, misleading or improper is liable to have his name erased from the Medical Register. In the interests of public business and in order to check frauds by individuals upon corporations, scrupulous care in giving certificates is required of every medical practitioner, and departure from the strictest rules of truth is regarded as a serious offence and infamous conduct in a professional respect.

I need only remind you of the numerous and varied certificates required by the Education Acts, by the Workmen's Compensation Acts, by the National Insurance Acts, and in connection with sick benefit, insurance and friendly societies—and there are many others—to make you realise that a heavy responsibility falls on our profession in such matters, and that laxity in observing the truth may have serious consequences to the public. Cases in which false certificates have been signed are sometimes brought before the Council by

corporations with many employees, such as railway companies.

The Warning Notice directs the attention of medical practitioners to several other practices which may make them the subject of inquiry by the General Medical Council, such as the employment of unqualified assistants either for the treatment of patients or for the sale of poisons. It also points out how a registered medical practitioner may contravene the provisions of the Dangerous Drugs Acts and thus become the subject of criminal proceedings; but I prefer to pass on to the consideration of those clauses which have made the General Medical Council from time to time the subject of much journalistic criticism.

The fifth clause in the Warning Notice states: "Any registered medical practitioner who, either by administering anæsthetics or otherwise, assists an unqualified or unregistered person to attend, treat or perform an operation upon any other person in respect of matters requiring professional discretion or skill, will be liable, on proof of the facts, to have his name erased from the Medical Register." It is difficult to believe that action taken by the General Council in respect to such cases should lead to the abuse of that body. The law requires that in order to be duly qualified to practise medicine and surgery a practitioner must have to pass through a long training and severe tests in the form of examinations by recognised licensing bodies. If an unqualified person, without such training and without any scientific knowledge of disease, sets up to cure confiding members of the public he is at liberty to do so. If, on the other hand, he desires for the purpose of curing his patients to render them temporarily unconscious, he needs the services of an anæsthetist. Now the giving of anæsthetics requires considerable skill and experience on the part of the anæsthetist and is not free from danger to the patient. The unqualified practitioner naturally seeks for a qualified person to give his anæsthetics in order to escape the serious consequences which would arise if a patient were to die under an anæsthetic administered by an unqualified person. Moreover, the presence of a duly qualified medical practitioner taking part in an unqualified person's treatment conveys a sense of safety to the patient and suggests to the latter that the treatment which is carried out while he is under the influence of the anæsthetic must necessarily be competent and skilful. The registered medical practitioner who is paid by an unqualified person to assist him in his practice, by giving anæsthetics or otherwise, can hardly complain if he finds his name is erased from the Register. As a matter of fact, practitioners who adopt such methods of making their living are not, as a rule, disturbed by finding themselves off the register. They usually continue such practice and receive a certain amount of adulation from the public, who regard them as martyrs to their sense of independence. Such association with unqualified persons may not be unprofitable, but, before undertaking it, it would be as well to consider what lease of life the particular form of unqualified practice is likely to have. No form of quackery has a very long lease of life, and the practitioner who has sacrificed his position on the register may find himself left in the lurch before he has saved enough money to keep the wolf from the door after the particular form of quackery with which he has been associated has ceased to be fashionable.

And, lastly, we come to the question of advertising and canvassing. The Warning Notice says that the practice "of advertising, whether directly or indirectly, for the purpose of obtaining patients or promoting his own professional advantage; or for any such purpose, of procuring or sanctioning or acquiescing in the publication of notices commending or directing attention to the practitioner's professional skill, knowledge, services, or qualifications, or depreciating those of others; or of being associated with or employed by those who procure or sanction such advertising or publication is, in the opinion of the Council, contrary to the public interests and discreditable to the profession of medicine, and any registered medical practitioner who resorts to any such practice renders himself liable, on proof of the facts, to have his name erased from the Medical Register."

This question of advertising is a very difficult one for the Council to deal with, and there can be little doubt that it occasionally comes to wrong conclusions. When it does so, it has generally erred in the direction of leniency. The Council does not initiate inquiries into the conduct of practitioners in relation to advertising; it awaits complaints, and, if these seem reasonable, orders an inquiry.

Let me give you an imaginary example of the kind of case which the Council has to consider.

Some unknown genius, without the handicap of a medical training, discovers a cure for all diseases of the heart or the stomach. Now cures are more effective in these days if they involve the use of a syringe and a needle, and you can charge more for one hypodermic injection than you can for several bottles of medicine. But hypodermic injections require some small amount of professional skill and the employment of a duly qualified medical practitioner for their administration is impressive and protective. The cure is

widely advertised in the press—the usual story—"after trying many doctors without result, etc." Little paragraphs appear in the news columns, and quite a crowd of chronic dyspeptics find their way to a second-floor room in some well-known street where the duly qualified medical practitioner in a long white coat punctures them at a guinea a time, paid in advance. The case of the practitioner is brought before the Council, who decide that he is guilty of infamous conduct in a professional respect, and direct the Registrar to erase his name from the Register. The fat is then in the fire. The paper or papers in which the advertisement had appeared rise up to their indignation and wrath, and roundly abuse the General Medical Council of trade-unionism, of a hush-hush policy, of preventing the public from recognising and enjoying the benefits of a wonderful discovery, and so on.

I suppose the trouble all arises from the fact that advertisements and advertising are the life-blood of the press. They could not exist without it. It is inconceivable, according to their lights, that there should be anything wrong or infamous in advertising, and what would happen to the public if the whole profession started advertising is a question they have never had time to consider.

It is a question, however, worthy of consideration. Suppose for a moment that we should all be expected, in order to keep ourselves before the public, to have at least one advertisement a week in the papers. Suppose for a moment that coming down to hospital you opened your Mid-day Special and found "Hurst for Hiccup" or "Fagge for Fractures" staring at you in large type next to "Pink Pills for Pale People." After all, it is only a matter of degree, and, once the principle of advertisement is admitted, there could be no drawing the line. It might lead to more money flowing into the pockets of the profession, but would it benefit the public? I think the answer is "No," and for that reason the General Medical Council have issued a Warning Notice, not because they have adopted a hush-hush policy, or wish to damp the enthusiasm of untrained geniuses in their endeavours to cure their fellow creatures.

I have not exhausted, by any means, the various functions and activities of the General Medical Council. I have attempted to bring to your notice not the details of everything they do, but to try and convince you that this body, which was formed for the protection of the public, still continues to carry out this work on those lines. I go further and suggest that, if your curiosity has been excited to any degree, you come one day to a session of the General Medical Council. It meets for about a week twice a year—in May and November—and all the proceedings are open to the public. There is a comfortable gallery, in which you can get a seat, and it would not waste your time to spend one afternoon there in the course of your few years as students. And I think you would agree that, though we are a body of old fogies, on the whole we are fairly respectable and fairly intelligent. Perhaps there are not many juries better equipped for the particular purpose for which they are called. I am sure very few people who are tried or whose conduct is inquired into are able to come before a body which has a more intimate knowledge of the difficulties and dangers surrounding the work they have in hand, and who can be more sure to give sympathetic consideration.

The *Minx* Goes West

AFTER two or three days cruising about the Isle of Wight the *Minx* found herself at moorings in the Hamble River on June 22nd. The crew consisted of the skipper, his brother H. or mate, and they had been joined the night before by the third hand J., who was experiencing his first holiday afloat.

Last year we took our holiday in August and couldn't get further west than the Needles, so this year we arranged to sail before the west wind set in for its annual August blow, and try and get a little further west.

After laying in a large supply of food, we turned in early on Tuesday night and hoped for a fair wind on the morrow.

Wednesday, June 24th.

We awoke bright and early, but there wasn't a breath of wind, and it looked very much like rain, although the barometer had been rising and stood at 30.20.

At mid-day there was a heavy rain squall, during which a breeze sprang up from the N.E. We decided to move if the wind held fair, at 2 p.m., so as to catch the first of the ebb tide at the Needles and carry it as far west as we could.

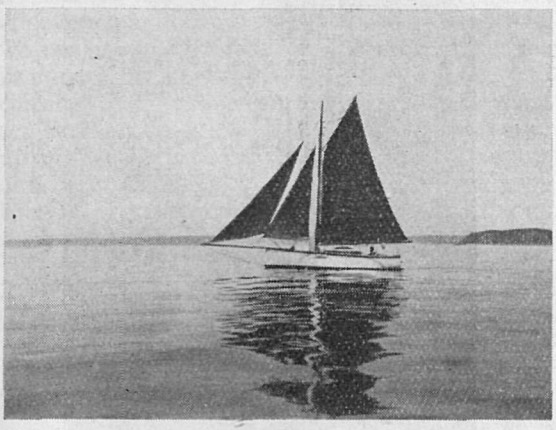
2.5 *p.m.*—We slipped our moorings and got away under full sail. Wind was N.E. and light, but we hoped to find it fresher once we got clear of the river.

2.25 *p.m.*—We passed the Hamble Spit buoy and shaped our course through the Brambles channel. The breeze soon freshened and sent the *Minx* romping along down the Solent.

At 5.5 p.m. the Solent Banks buoy was abeam. We were having a glorious sail and making enough headway against the tide to get to the Needles at low water.

6.5 *p.m.*—The Needles were sighted, although visibility was not yet very good. However, the rain had stopped, and it looked as if it was going to clear up.

At 6.15 p.m. Hurst Castle was abeam, and we set our course to pass between the Bridge and W. Shingles buoys. The sea was now much calmer as it was now slack water.



Becalmed off Bolt Tail

6.45 *p.m.*—The skipper bailed out the dinghy. It was leaking rather like the proverbial sieve, but we hoped it would not need seeing to again during the night. There was now blue sky behind and over us, and it was clearing away ahead, so we hoped that the easterly wind and fair weather had come to stay.

6.53 *p.m.*—We passed the West Shingles buoy to starboard and streamed the log.

We hauled down the foresail at 7 p.m. and set the reefed squaresail. There was rather too much breeze to carry the whole sail, and also, if unreefed, it is rather liable to obscure the navigation lights. Set course W.½S. to give Portland Bill a wide berth, as we had read and heard quite enough about the Race.

The breeze was now E.N.E., so that we should have found steering much easier and safer had we pulled down the mainsail and set the whole squaresail, but the *Minx* was just roaring along and it seemed a pity not to make the best of a fair wind.

We had had a barge in front of us all the way down the Solent. He was evidently also bound west and setting every stitch of canvas. Odds were being offered against us passing it, and the skipper was the only one who thought we were gaining.

7.53 *p.m.*—Log read 4.8 miles. Anvil Point was standing out clearly on the starboard bow. The wind was a little fresher now; we were drawing clear of the land.

8 *p.m.*—Supper was very welcome.

8.20 *p.m.*—Opened up St. Alban's Head.

8.30 *p.m.*—There is a tragic entry in the log that J. returned his supper to the fishes. H. and the skipper thought it such a waste, since it was a very good one and they had spent an uncomfortable time in the cabin preparing it.

8.53 *p.m.*—The log read 10 miles. 5.2 knots for the last hour was not bad, and with that speed and fair tide we hoped to be off Portland by midnight and get into the comparatively tideless waters of West Bay.

Anvil Point was abeam and the barge still about the same distance ahead. We saw her stern-light all through that night, and she was still in sight next morning.

9.10 *p.m.*—The sun disappeared behind St. Alban's Head in a blaze of gold and red, which augured well for fine weather on the morrow. We could just make out Portland Bill to the west.

9.30 *p.m.*—Off St. Alban's.

9.53 *p.m.*—Log 14.9 miles. Dead reckoning and cross-bearings put us about 4 miles S.W. by S. of St. Alban's. We had by now sighted Portland Light and occasionally we could see the flash of the Shambles Lightship. The wind had eased round to the north a bit and was now a little lighter. This made steering much easier, as before we were very near the gybe.

10 *p.m.*—Set up navigation lights.

10.53 *p.m.*—Log read 19.1 miles.

11 *p.m.*—The skipper started his watch. H. had taken the helm since 8 p.m., as J. had retired temporarily *hors de combat*. The skipper took on at 11 p.m., as he wanted to be up all night. This would not have been necessary if we had all had some previous experience, but this was the first night sailing that H. and J. had done. We were running very near the gybe the whole time, so that steering was not easy.

Just after 11 p.m. we had a little entertainment. A searchlight was pointed at us from the shore, swung astern of us and remained fixed. Soon after some huge Very lights burst in mid air, and fell smoking down to the sea, followed by the roar of big guns. This went on for several minutes, and the lights made a beautiful sight, each flash

lighting up the sea around and shining on the columns of smoke left by the others. It rather disturbed the watch below.

11.15 *p.m.*—The Shambles Light-vessel was abeam about 3 miles. The moon was making fitful appearances through the clouds, and the barge was still in sight.

11.53 *p.m.*—Log read 23.4 miles. Portland Bill was now about 4 miles distant on the starboard beam. Altered course west for Start Point, distant 49 miles. It seemed to take a long time to pass the Bill, although the tide was slack. We had carried the ebb all the way from the Needles.

Thursday, June 25th.

1.53 *a.m.*—Log read 33 miles. The skipper called out J., as he thought he had had enough sleep—he had been below since 8 p.m. Also, 2 o'clock in the morning is a ghastly hour by oneself. J. was feeling a little better, but not recovered. He took the helm for a while.

2.45 *a.m.*—The binnacle light blew out, so J. took the helm while the skipper went below to light it, having given J. a star to steer on.

Almost immediately there was a ghastly crash and the *Minx* lurched over, with from J., "What the —— happened now?" That was too painfully obvious. Apparently poor J. had not finished feeding the fishes, and during a bout had gybed all standing. It was very bad luck on him, as sea-sickness is a most terrible thing, and the gybe rather shook him as he had not done much sailing before.

Luckily no harm was done, and most of the shock of the boom had been taken by the bang. We soon gybed back again—not all standing this time—a manœuvre which threw H. out of his bunk, as he had turned in on the starboard bunk, not to mention also that the skipper lost his hat.

2.33 *a.m.*—Log, 38.4. The wind was now much stronger and we considered reefing. Although we were driving the *Minx* pretty hard, she was rising well to the huge waves coming up astern, and it seemed a pity not to make the best of the fair wind, so we kept her at it, although she needed careful steering.

The waves seemed very large after the short Solent seas, but they seemed to suit the *Minx* much better.

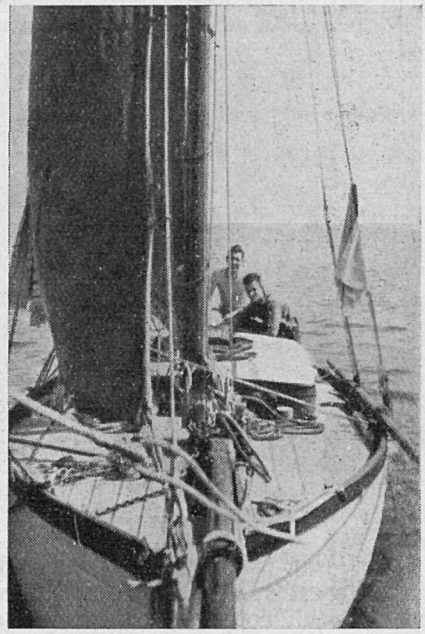
By 3.30 a.m. the wind had eased off a bit, and, while H. steered, the skipper made a pot of tea (he called it tea); anyhow, it was hot, which was the main thing. It had just started to get light in the N.E.

3.53 *a.m.*—Log, 43.3.

4.15 *a.m.*—It looked as if it was going to be rather a red dawn. We hoped to be off the Start by 10 a.m. if the wind held. The skipper turned in to snatch forty winks, as he had had no sleep since Tuesday night.

5 *a.m.*—H. recorded a perfect sunrise, with hardly a cloud in the sky. When the skipper awoke at 5.45 a wonderful sight met his eyes. It was one of the few perfect summer mornings we have had this year—bright sun, which at that hour was hot, hardly a cloud to be seen, and a deep blue colour in the sea, with long easy waves coming up astern, their crests sparkling like crystal.

We could still see the barge, and wide on the starboard bow we could see the faint outline of the Devon coast.



From the Bowsprit

6.45 *a.m.*—We made out a headland far in the distance right over the bowsprit bearing west. According to bearing and dead reckoning this was Start Point, about 16 miles distant.

6.53 *a.m.*—Log read 57.3.

7.40 *a.m.*—The headland was confirmed as Start Point by the lighthouse, which with the glasses could be seen glistening white in the sun.

Although longing to push on and make Plymouth, we were forced to decide to put in to Dartmouth. J. was still unwell, though cheerful, and the skipper and H. had both developed internal upsets. We blamed the tinned milk for this, as it had been kept open too long. The next thing was to find the entrance to Dartmouth Harbour. We had not any idea what it looked like, and there

seemed to be no break in the coast. Somehow or other we had not read about the Beacon or Froward Point, which is the landmark for the harbour, and unless a stranger knows about that it is extremely difficult to find the entrance from any distance off, as it is set right back in the cliffs. We took down the squaresail and hauled our sheets, altering our course to where we thought Dartmouth should be, and hoped to be able to make things out a bit better when we had closed in with the land.

9 *a.m.*—We saw a boat sailing out of Dartmouth, which gave us our position, and we found we could just lay the harbour sailing close-hauled.

Meanwhile the skipper had been reading the pilot books about the entrance, and it seemed to be beset with outlying dangers—tidal eddies, Menstones, Blackstones, and so on. However, after much argument as to what a Menstone was, we reached the entrance to the harbour at the beginning of the flood tide. To a stranger we consider that Dartmouth is rather difficult, being set back in the hills, and the outlying rocks lie up against the cliffs, so that they cannot be made out until you are very close in. Once you have been in, it is probably one of the easiest harbours there are, provided you have a fair wind or tide.

Although we were all tired, we could not help admiring the beauty of the entrance: great towering cliffs coming down to the water's edge, with coves and gulleys on either side, and, perched up on the eastern side, the houses of King's Wear.

The wind being northerly, we lost it after passing the Castle Ledge buoy, but with the help of the tide and occasional gusts coming off the hills we got past the Kitty and St. Petrox Church, finally anchoring off King's Wear in 4 fathoms at 11 a.m., having taken 21 hours to do the 95 miles from Hamble.

We had averaged nearly 5 knots, which is not bad for a boat only 20 feet long. We were very lucky to get such a steady easterly wind, and it is not often a boat bound down Channel is so fortunate.

During the next week or so we cruised about the coast, drifting down to Salcombe and Plymouth in perfect summer weather, and then back again to Torquay and Brixham. Everywhere people were most kind and hospitable, and always seemed ready to help us in every way. It is quite the most delightful cruising ground we have met so far, and we all look forward to a further opportunity of renewing our acquaintance with it on some future occasion.

Correspondence

An Accountant's View on General Practice

To the Editor of the GAZETTE

SIR,—The following letter has been received by me, which I should be glad for you to publish in your correspondence columns.

A. H. DOUTHWAITE.

Dear Dr. Douthwaite,

I have read with great interest the report of a lecture delivered by you at Guy's Hospital on the 4th September last, and should like to offer my congratulations on the very sound advice you offered to the young members of your profession.

In the course of my practice as an accountant I am continually meeting members of your profession who are in difficulties which are the result of not taking the precautions which you so ably put forward, particularly when entering into a partnership.

There is just one criticism which I may, perhaps, be allowed to offer, and that is as to how the prospective purchaser of a partnership would be affected from an Income Tax point of view. I observe that you suggest inquiring as to the net income to be shared out after deducting all practice expenses and Income Tax, but I would suggest that Income Tax, being a purely personal matter, should be considered quite apart from the income from the practice.

It is conceivable that an incoming partner, especially if he is a single man, would not be entitled to so much in the way of personal allowances as the existing partners, and in that case his Income Tax liability would be far greater; consequently, in order to estimate what his own net income would be after payment of all outgoings, he would not arrive at a true figure if the total Income Tax of the partnership was deducted in the first place.

There is one rather important question involved when entering into a partnership, and that is as to the basis of assessment when a change occurs by the admission of a new partner.

Prior to the year 1927-28 the taxpayer was in a favourable position, as he was in the first instance assessed on the basis of the income arising from the practice in the preceding year, and at the end of the year he could claim adjustment of the assessment if the profits were less than the amount assessed, while on the other hand the Inland Revenue Department could not increase the assessment.

Since that year, however, very far-reaching complications have been incorporated in the Income Tax Acts which make it of the greatest importance for a prospective partner to consider the position at the time he is considering the question of the partnership, as if he leaves it until a later date he may find himself saddled with a very large Income Tax liability which he could have, to some extent, avoided by taking the necessary precautions. These provisions are somewhat involved and require a large amount of explanation, but if you are likely to be repeating your lecture at any time and would care to incorporate some remarks on this question, I shall be very pleased to let you have the necessary data.

I was particularly glad to note your very sound advice that the first essential is a good solicitor possessed of special knowledge relevant to general practice. I have during the last 12 months or so had two instances arise in my practice where considerable difficulty has arisen and very large expenses, both legal and accountants', have been incurred by reason of unsatisfactory and ambiguously-worded partnership agreements.

Finally, it is a sound policy for a practitioner starting practice to consult an accountant at the beginning rather than to leave this matter until the end of his first year. The small fee involved in seeking advice in advance is more than saved by the reduction in the fee at the end of the period, as in our experience it takes twice as long to prepare an account when the records have not been kept in some sort of order as they would be if advice was sought at the beginning and the accountant's suggestions carried out.

Yours, etc.,

JULIAN W. HARDY.

49, Chancery Lane, W.C.2.

Biennial Dinner and Post-Graduate Course

To the Editor of the GAZETTE

SIR,—In consequence of the " no speeches " rule at the Biennial Dinner, while acknowledging our appreciation of Mr. F. J. Steward as chairman and of Dr. Geoffrey Marshall as hon.-secretary, no opportunity occurred for the numerous old Guy's men who attended the various lectures, demonstrations, and ward rounds of several members of the Staff to thank them for their trouble in carrying out this excellent, if all too short, spell of post-graduate work. I feel sure that most of us would be glad if you could convey our thanks to the members of the Staff who took part, through the *Gazette*.

The whole meeting was an unqualified success.

Yours, etc.,

OSWALD MARRIOTT.

Reply to Dr. Symonds

To the Editor of the GAZETTE

SIR,—In reply to Dr. Symonds' kindly criticism of one remark in my lecture on Poliomyelitis, I should like first of all to make it clear that I was not referring to the teaching of Dr. Symonds himself or of anybody at Guy's. I had in my mind, at the time of writing, the general trend of the remarks of the medical speakers in a discussion at the Medical Society of London in 1927, and the deficiencies of medical practice as I have seen them in the wards of many hospitals.

On the subject of the relaxation of paralysed muscles I am afraid that there is a necessary and probably irreconcilable conflict between neurological theory and surgical practice. I took my degree in physiology, and have read many of Sherrington's works; but I have also had under my care during the last ten years more than a hundred cases of infantile paralysis during their gradual progress from complete paralysis to useful function. The worst problem we have to face, because it is an avoidable one, is that of the case that arrives with deformities due to shortening of the more powerful groups; some of these are due to well-meant " re-education," others to neglect, but there is little difference in the final result. These deformities must be corrected before the paralysed muscles can recommence, months too late, their work of regeneration. Sometimes, particularly in the trunk, the deformity cannot be corrected; sometimes correction comes too late for the muscle to benefit.

I should like to take two points in Dr. Symonds' letter in which the practical experience of the surgeon points in the opposite direction to physiological theory. The question of axon regeneration I leave; partly because I agree in the main with Dr. Symonds' view, more because I wish to confine myself to the more important issues of treatment.

Dr. Symonds says " there is theoretical reason for the belief that . . . a physiological degree of stretching (which is in the literal sense a ' tonic ' for healthy muscle) may do good." But the healthy muscles of a fractured limb keep their tone and contractile power and do not waste even though the joints which they activate are completely immobilised, if the use of the limb as a whole is encouraged. In the case of a fracture of the tibia and fibula fixed in plaster for eight weeks, or in a Colles' fracture fixed for six, provided that walking and finger movements have been encouraged, the movements of the ankle and wrist joint will be greater and their muscles stronger the day the plaster is removed than in cases of the

same duration that have been treated by massage and movements from an early period.

Again, "allowing stiff joints to develop for lack of daily passive movements." Passive movements are, in a general way, the horror of the surgeon, and a blot on massage. Nor do stiff joints ever develop in poliomyelitis, or, if they do, I have yet to see my first case. We often see joints whose movement is lost, but only through the contracture of the less paralysed muscles due to inefficient relaxation. It is fairly safe to say that the joint of a child cannot be made stiff by immobilisation, however prolonged, unless there is disease in the joint itself.

With Dr. Symonds' statement that great improvement follows graduated exercises correctly applied, I am in entire agreement. But no useful purpose is served by starting these exercises during the stage of recovery, and when they are started the limb should be returned to its protective apparatus till the weak groups are able to maintain joint position unaided. Any surgeon or masseuse who has had charge of these cases can remember instances where a muscle, commencing to recover, has ceased to show any power after being allowed to stretch. What the reason of this is I cannot say; nor does it matter. But it does happen, and it is to prevent such happenings that I must face the big guns of neurology in decrying any laxity in splinting during the recovery stage. At this period the orthopædic surgeon prefers physiological movement of the limb as a whole, while guarding the weak or apparently paralysed muscle from over-stress or over-stretching. However sound Dr. Symonds' teaching may be upon physiological grounds, I fear that in the hands of the less skilled it is apt to become a dangerous heresy.

Yours, etc.,

W. H. OGILVIE.

105, Harley Street,
W.1.

Nursing News—The Debating Society

A DEBATE was held in the Nurses' Home on Tuesday, September 30th, with Sister Gration in the chair.

The subject, "That a Jack-of-all-Trades is better than a Master of One," was proposed by Nurse Marriott, who maintained that the Jack was broad-minded, an adept conversationalist, useful, practical, keen in appreciation, and in sympathy with all sides of life, and always eager to solve the minor problems confronting him, and, in short, a perfect joy to live with.

Nurse Gillham opposed the motion, declaring that the dictionary defined the Jack as a "paltry fellow" who dabbled in all things, but excelled at none. She quoted examples of men who had mastered their trade, and consequently left a permanent record of their achievements, and contrasted these with the ineffectual dabblers, satisfied with a low standard of attainment.

The motion was seconded on both sides, and was then opened to public opinion.

The discussion then became very heated, and with caustic wit one speaker said: "By all means be a Jack-of-all-Trades if you cannot be a master of one!"

A thrust was made at specialists by an embittered suggestion that when a man cultivates a special sense, he is apt to lose his common sense.

Eventually, however, the specialist came out at the top of the poll, and the Jack-of-all-Trades took his rightful place as a subordinate.

Nurse Moss then proposed a vote of thanks to Sister Gration for presiding at the debate.

Sport

Rugby

Guy's v. Harlequins

VISITING Twickenham on Saturday, October 24th, Guy's suffered their first reverse of the season when they were defeated by 4 placed goals (20 points) to 3 tries (9 points). The result came as a great disappointment to the supporters of the Hospital fifteen, especially as the team had done so well in their opening games.

In spite of the fact that they had Fichardt re-appearing in the side at right-centre three-quarter, the team did not play as a combination, and were rather disjointed both in attack and defence. This was to a great extent due to the ineffectiveness of the pack, who, although they excelled in the loose, were unable to gain the advantage in the set scrums, where the home forwards, ably led by P. W. Adams, Coghlan and Prescot, held the upper hand.

The Quin's pack worked very hard throughout, and by sheer hard shoving and low packing they obtained the ball continuously. MrCreight was able, therefore, to set his backs in motion from practically every scrum.

As a result, Howell had a difficult task in getting the ball away, and had as much as he could do in watching the ever-ready McCreight, who was at

the top of his form and continually seeking gaps before setting his backs in motion.. However, it was a very exciting game, and although, with the exception of a few individual efforts, the play did not reach a very high standard, there was plenty of hard tackling and keen play on both sides.

W. B. Clegg, who came into the side at full-back at the last moment, gave a creditable exhibition. He was obviously nervous at first, but once he had settled down he brought off some fine tackles and kicked with excellent length and judgment.

Ashdown had very little to do on the wing, and had he been given more opportunities there is no doubt that he would have used his speed to advantage.

When the Guy's backs did get the ball, they appeared to hang on to it too long, with the result that the opposing quartet, by quick anticipation and following up, invariably caught them in possession and prevented any possibility of an attack.

McCreight played a splendid game, and the manner in which he sold the dummy led the Hospital defence into committing errors, which cost them valuable points.

Guy's continue to make the mistake of tackling high instead of low, and it was surprising the number of times they missed an opponent through this error of tactics.

The Hospital were the first to score as the result of a splendid run by Howell, who, after five minutes' play, took the ball to near the goal-line before sending in Hogbin for a try, which he failed to convert from what appeared to be an easy position.

The Quin's then attacked strongly, and after McCreight had broken away from a scrum he passed the ball out to Chapman, who was tackled by Giesen when a score appeared imminent. Brief rushes by the Hospital forwards in which Popplewell and O'Shea were prominent did not get very far before Cole picked up in his own half and ran through our defence. However, he failed to collect a short punt ahead, and Clegg cleared with a strong kick to touch.

The home team were now all out to wipe out their deficit, and a brilliant run by Chapman with a man on either side gave him the opportunity of sending in Cook for a try behind the posts, which Ronald converted.

Near the interval Guy's were awarded a penalty kick for offside in front of the goal-posts, but Hogbin again failed to score. It was learned at half-time that Hogbin's boots had not arrived with the rest of the equipment for the team, and that he was playing in a pair of boots which he had borrowed from the groundsman.

From the kick-off Guy's went off with a great dash, but Bader drove them back with judicious touch-kicking. One of the Guy's forwards was tackled when saving near his own goal-line and, from a quickly-formed scrummage, the ball was whipped out to Cole, who cleverly ran through the Guy's defence and scored near the posts for Ronald to add the goal points.

The Hospital, now roused, made tremendous efforts to get through—a fine run by Giesen nearly brought a score, and immediately afterwards a short passing movement between Giesen, Lewis, Howell and Johnson ended in Howell crossing in the corner too far out for Lewis to convert.

Immediately afterwards Guy's reduced their arrears still further, when Windsor Lewis found touch near the corner flag and from the line-out O'Shea forced his way over for a try, which Hogbin only failed to convert by inches from near the touch-line.

It was now touch and go, and at one time it appeared as though the Hospital would win through, but in the last few minutes the Quin's scored two brilliant tries as the result of dazzling runs by McCreight and Cole, who both scored in easy positions, for Ronald to convert on each occasion.

Team.—W. B. Clegg; A. G. Johnson, J. E. Giesen, T. Fichardt, D. E. Ashdown; W. H. Lewis (Capt.), J. Howell; J. S. Batchelor, J. P. O'Shea, R. J. Drummond, J. Cunard, I. G. Robin, T. Morgan, R. A. P. Hogbin, J. R. F. Popplewell.

Hospital Information, etc.

Papers by Guy's Men

J. W. Doherty. Treatment of teeth of pre-school child. *Brit. Dent. J.*, 1931, lii, 453.

G. B. Dowling. (1) Case of atrophoderma following salvarsan dermatitis; (2) Telangiectasia. *Proc. R.S.M.*, 1931, xxiv, 1647, 1648.

L. Forman. (1) Lichen spinulosus with lichen planus; (2) Lichen planus with unusual tongue lesion. *Proc.* R.S.M., 1931, xxiv, 1649.

R. D. Gillespie. Mental hospital relative to development of preventive medicine. *Hospital*, 1931, xxvii, 239.

Appointment

H. A. H. Harris, F.R.C.S., Honorary Assistant Surgeon, Chelmsford and Essex Hospital, Chelmsford.

Change of Address

A. B. Kettle, M.D., 1, Edge Hill Avenue, Finchley, N.3.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

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PASSIM

NOT so long ago, in response to numerous requests, we made use of these columns to voice a petition for the institution of an annual course of lectures on treatment for the benefit of those shortly to enter general practice. Again we have been approached by this section of the community. We make no apology for further championship of their cause, for who can deny that, of all those receiving their medical training at this Hospital, the great majority do, ultimately, enter this branch of the profession. Thus it is that we willingly extend our editorial aid in making public a suggestion which to us seems good. Here at Guy's we inevitably live our lives in the very heart of specialisation, and during, at the least, the latter part of our student careers obtain some small insight into the lives of those in the higher branches of the profession. But how many—or, more correctly, how few of us show that brisk and effortless ascent of the ladder of Fame which hall-marks the embryo stages of our future consultants. Let those fortunate few continue their course from rung to rung unimpeded. It is with the futures of the rest of them that we are concerned at the moment. Any provision that is made for the improvement of the mental equipment of the latter will be in the interests of the majority, and as such command widespread appreciation.

Until recently, those leaving the Hospital to embark on general practice did so with but meagre, if any, knowledge as to what they were about to undertake. We say " until recently," because of late years we have had the privilege of hearing and the opportunity of reading Dr. Douthwaite's excellent lectures on this subject, lectures which embodied his experience gained in five years of general practice before he joined the Staff of this Hospital. Undoubtedly this course of lectures has whetted our appetite for more. So it is that we make bold to suggest that other prominent Guy's men who have made their mark in the various branches of general practice be invited to lecture to us. Thus with the benefit of their experience we may be better equipped for the trials and pitfalls ahead and have a greater knowledge of the compensations for these that we may expect.

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A FEW nights ago the peaceful and well-earned slumber of many College dwellers was somewhat interrupted by a minor disturbance in the Hospital. Although most of us are hardened to uncouth noises and rude awakenings, to which we have acquired the habit of turning a very sleepy ear, the effectiveness of the alarm on this occasion was such that at least one-quarter of the College inhabitants sprang rapidly from bed and repaired to the scene of the disturbance. Indeed, the effectiveness of the alarm was only limited by the fatigue of the person engaged in performing it.

For this reason the residents of the top floor were allowed to sleep on peacefully. But on those unfortunates on the ground floor the disturbance fell with a sudden and shattering blast. To the loud clanging of a bell and shouts of " Fire ! " they jumped from their beds, hastily donning such clothes as were handy and rushing precipitately from their rooms.

On the second floor the alarm was more subtle and gradual in onset. To many it first presented itself as a dream, in which dozens and dozens of ambulances, all containing imminent B.I.D.'s gasping their last breaths, rushed up the Maze Pond to the Front Surgery with a loud ringing of bells.

Following this, the sound of voices in the street below, presumably anxious relatives or interested spectators, eventually awakened one sufficiently to induce an investigation from the bedroom window into the cause of the disturbance.

The scene revealed below was indeed alarming. The Park, and Maze Pond from St. Thomas's Street to the Surgery, was packed with fire-engines. Firemen walked busily about, hoses lay in the road, and ladders were propped against the wall of the Surgical block. The Hospital itself seemed peaceful enough. The wards were in darkness, it being not yet breakfast time, and we looked in vain for the leaping flames and columns of smoke which we expected to see. At the entrance to the College a handful of spectators (the ground-floor inhabitants) stood gazing earnestly upwards. Following their gaze we at last found the fire. From one of the many chimneys there issued a few harmless-looking and infrequent sparks. Cold and shivering, we crept silently and rapidly back to bed.

▭

WE should like to draw attention to the visit which Mr. Fagge is making next year to Australia and New Zealand as representative of the Royal College of Surgeons of England to the recently formed Australasian College of Surgeons. His stay in Australia begins on February 2nd, 1932, when the *Orontes* arrives at Fremantle; from February 6th to February 9th he will deliver post-graduate lectures in Adelaide, and will be in Melbourne from February 10th to February 20th for the Annual Meeting of the Australasian College, at which he will present the Mace, and deliver the Syme Oration. From February 21st to March 3rd he will give post-graduate lectures in Sydney, and will arrive at Auckland on March 7th for the British Medical Conference, when he will read a paper on Diverticulitis and open a discussion. He hopes to go to Rotorua to fish about the 14th, and will pass through Wellington and Christchurch on his way to Dunedin, where he should be from the 16th to the 20th of March. It is his intention to return to Wellington for a few days before the *Rangitiki* sails from that port on March 26th. We should like to take this opportunity of wishing him a very pleasant and successful trip.

▭

WE have recently received inquiries for bound volumes of the *Gazette* from 1887 onwards. As these are now rather scarce, especially the early numbers, we should be glad to hear from readers who have any that they wish to dispose of.

General Practice

A Lecture delivered by Dr. A. H Douthwaite, at Guy's Hospital, September 4th, 1931

PART III

FEES

THE attitude of a considerable section of the medical profession towards the matter of fees has been, and possibly still is, hypocritical and illogical. None of us needs to be told that medicine may demand unrecompensed endeavour, nor would he who loves his work raise objection to it. It is quite another matter, however, to counsel young doctors to give but passing heed to the financial side of their work lest the dignity of the profession be tarnished. I have observed that such advice emanates invariably from those who, through no virtue of their own, have never been faced with the possibility of penury, or by medical luminaries who have amassed sufficient in their years of active life to be able to afford to forget the means whereby they attained their happy state.

The great majority of patients are honest, but a small section is deliberately out to exploit the doctors with their ludicrous reputation of being undiscerning philanthropists. To my mind the dignity of the medical profession is not upheld by allowing an unprincipled patient to abscond without paying the fees he owes. In point of fact, it is encouraging him to do the same thing on one's colleagues, in the belief that no doctor ever sues for a debt. With the exception of medical men holding a certain diploma, there is no restriction in the use of legal proceedings for the recovery of money due. It is noticeable that those who hold the restricting qualification ask for their fees before leaving the patient's house. Here, again, I question whether the dignity of the medical profession is exalted by the spectacle of a doctor asking for his fee, possibly immediately after having given a grave verdict to the assembled family. To my mind it is far more reminiscent of " degrading trade " than an occasional appearance in a magistrate's court.

Our untenable attitude in the whole matter has arisen from failure to discriminate between those who cannot, and those who will not, pay. The former deserve the utmost consideration; the latter, none whatever.

The following are a few of the methods employed by the professional fee-dodger :—

1. Taking a temporary residence, and then vanishing into thin air. Always beware of the man who tells you to spare no expense, he means what he says, for he has no intention of paying you back.

2. Returning your bill with a cheque for a quarter of its value and a note that he feels sure you must have made a mistake, as he thinks that a visiting fee of, say, 10*s*. 6*d*. is excessive.

3. Refusing to pay because the doctor has not effected a cure. Such letters often contain veiled references to possible legal action. The whole epistle is, of course, a bluff, and should be sent forthwith to the Defence Society to which the doctor belongs. An official letter from the lawyer brings the patient to his senses.

4. Placing an envelope containing the fee on the desk after a casual consultation. By the time the doctor can with decency examine the wholly inadequate contents the patient is well away.

5. Calling in old clothes and pleading extreme poverty in order to gain a reduction of fee. The same patient may be seen at a later date positively bristling with orchids and furs.

6. Claiming professional privilege when none exists. Before dealing with this type of fee-dodger it might clarify matters to state the professional people whom one normally attends without question of fee. In the first place, of course, come doctors, doctors' wives, widows and children, provided that the latter are not earning an adequate living. To be asked to attend any of these is at once a compliment and a privilege of which we should be proud. Secondly come practising nurses. Thirdly, one's immediate dental colleagues and their families. A considerably reduced fee, or no fee (depending upon the exact circumstances) is charged to the dental profession as a whole and clergymen, with the exception of archbishops, bishops and deans.

If, however, a patient write that her uncle was at Guy's, or her sister a nurse, and that she hopes therefore that you will charge her "professional fees," the time has come to object. This is a common and deliberate attempt to take unfair advantage of the fraternal feeling which so happily exists between the various members of the medical, dental and nursing professions.

At the outset of practice one is terribly hampered by a natural repugnance to raise the matter of payment at all. We should all be much happier if these matters could be entirely impersonal. After you have been deliberately swindled a few times your sense of inferiority in financial matters will diminish.

7. Attending hospital by those able to seek advice privately. The responsibility for the growing exploitation of the hospitals and their staffs is divided in ranging proportions between the hospital administration, general practitioner and patient. That certain doctors assist patients in this practice is so obvious as to need no further comment. It is presumably done to please the patient, who is unable to appreciate the fact that the indiscriminate use of charity is not only a form of dishonesty towards the subscribing public, but also a method of robbery from the doctors who attend him. The administrative side of certain hospitals is to blame for the insufficient powers invested in its almoners for inquiring into the financial status of the in- and out-patients; or for the blind acceptance of all patients introduced by a doctor's letter, or some hospital-supporting society. This raises a further point, namely, the limitation of powers of the hospital administrators owing to the hospital's dependance on our much-vaunted voluntary system. One must recognise also that many patients, whilst capable of paying a consulting fee, cannot pay for the many investigations which might follow. They, not unnaturally therefore, prefer to get the whole process carried out at hospital.

There is no cure for a condition of affairs which allows people of moderate means to occupy beds originally intended for the poor, so long as our hospitals are dependent upon charity. No doubt this will pass.

As to the best way of dealing with deliberate defaulters, I believe it is to ask a solicitor to take up the matter if no explanatory note has been sent in reply to a request for settlement of an account. My experience is that debt-collecting agencies are unsatisfactory. The proportion of the fee which they keep for themselves is often excessive. They make a great point of their diplomatic method of approach, but why worry about diplomacy with an individual who is, in fact, a rogue? Some doctors are actually afraid to write firmly to such patients for fear of losing them. But why fear? In any case a great number of these defaulters, once brought to book by a solicitor, turn over a new leaf and become one's most loyal patients. The mental reaction is that of a beaten dog.

Fees vary so much with the district that I can help you but little in the matter. Naturally your partners will tell you of the charges of the usual medical services. Special fees are, of course, charged for long-distance calls (about 10*s*. 6*d*. per mile), night calls, consultation with another doctor and special investigations. As regards the latter it avoids occasional unpleasantness if one

informs the patient of the cost of, for instance, a blood count before carrying it out.

RELATIONSHIP TO FELLOW PRACTITIONERS

In the event of practising in a small town the newcomer should call on all the local practitioners. In large cities this courtesy extends to those in the immediate neighbourhood. The probability is that the majority will not be at home, but one's duty is completed with the leaving of a card. Naturally, these calls are, or should be, returned.

It is inevitable that a certain number of patients will transfer their allegiance from one doctor to another. No one can take exception to this, provided the doctor whom he leaves be informed. Many patients will refuse to do this, in the belief that they will hurt his feelings. If they cannot be persuaded to do so, it is the duty of the other doctor to write and explain the circumstances. It is very important that this should be done in every case, even if such elementary politeness be not extended by others. To be huffed by the loss of a patient is ridiculous, and indicates a belief that one must be the best doctor available. Scarcely credible as it may seem, in certain partnerships great jealousy is felt by one member should a patient transfer to another member of the firm.

From time to time you may be asked to meet another doctor in the town for purposes of consultation. Rightly or wrongly, you may doubt whether he can be of assistance, but never refuse. To do so suggests a fear that your own diagnosis may be at fault, and will probably result in the patient's transferring himself to the other man. Similarly, if you should be asked to give a second opinion, never attempt to make profit out of the possible discovery of a gross diagnostic error. Not only is it bad form, but also there is a possibility that one day you will blunder equally badly, and will rely on the indulgence of your colleague.

Never accept the permanent care of a patient to whom you have been called by his doctor for a consultation. It is quite common for patients to try to arrange for this, arguing that in any case they have made up their minds for a change of medical adviser. In such an event tell them that they can go to anybody they like, except yourself. The only exception to this rule is if the doctor himself asks you to carry on.

If these elementary principles of common courtesy were adhered to, much of the existing jealousy between medical men would disappear.

In the event of your being asked to attend a sick colleague, remember that, for the time being, he is a patient and not a doctor. It is unfair to discuss with him the pros and cons of diagnosis and treatment. He needs to be taken under your complete control just like a lay person.

QUACKS

Some patients are sufficiently frank to tell their doctors that they would like to consult a quack, as orthodox treatment has failed to relieve them. In such cases it is a mistake to attempt discussion, unless the projected treatment be of a definitely harmful nature. Even should this be the case it is as well to limit one's remarks to the pointing out of the dangers, rather than to active persuasion against the proposed steps. Opposition invariably calls forth the accusation of prejudice, and makes the patient more obstinate than ever. After a few weeks of deep breathing for high blood pressure, oscillatory treatment for streptococci, contemplation of the navel for indigestion, or whatever is in vogue at the moment, he will return to you a chastened and loyal patient. To be pompous and refuse to treat further an individual who has so strayed is inexcusable, particularly if one's own treatment has provided no benefit. There is not, after all, such a great difference between the chiropractors who regard all ailments as referable to spinal displacements and a section of the medical profession who until recently ascribed innumerable diseases to infected teeth. In the former case the patient was at least no worse off for a course of spinal percussion carried out by a man who could not be expected to know any better. The real danger of the quack lies in his inability to diagnose, but most patients know the diagnosis from their doctors, and then wander because of failure of treatment.

One must recognise again that a select few quacks have added greatly to the store of medical knowledge. The profession should, for instance, be deeply grateful to three or four "bone-setters" who laid the foundation of the art of manipulation of joints. There is no shadow of doubt that they produced rapid cures in cases which had run the gamut of the leaders of the medical profession without success.

Having delivered this eulogy on quacks in order, in all fairness, to show you that there are two sides even to this question, I may add that, with very few exceptions, they are, in fact, ignorant and utterly dishonest. Their interest lies in money, regardless of the patient's health, or even life. However, there are exceptions, and from these we should attempt to learn their art so that we may apply it more intelligently than they can ever hope to do.

ADVERTISING

The longing of certain medical men for self-advertisement is as lively to-day as in the times of Bob Sawyer. Degrading as it is to witness this expression of intellectual inferiority, yet it is as well to know the worst, and I will, therefore, cite you a few of the methods employed.

1. Brilliantly coloured motor car (very common). Each new car is painted the same tint. A striking colour naturally attracts attention, and thus the doctor will be noticed at least twice as often as his more sombre competitors. The potential patient, unaware of this simple fact, will conclude that the doctor has twice their size of practice. From this it is a short step to conclude that he is the best doctor, and thus another lamb is added to the fold. A point of distinction between the super- and the ordinary advertiser is that the former leaves open the door of his car when he is inside the house, thus increasing the surface area of brilliance displayed the length of the street. I knew one doctor who induced his young partner to have his car painted the same bright hue as his own. This was too much, even for the lay public, who recognised the similarity between the vehicles of their medical attendants and those of any large store. The mistake was soon rectified, however.

2. Calling on new residents: (*a*) by the doctor's wife (subtle); (*b*) by the doctor (less subtle). There may be competition on the doorstep between the doctor and representatives of the local grocer, or milkman, bent on the same errand, but this does not deter our experienced advertiser. It is remarkable how often this comes off. Naturally, the initial call is made ostensibly as a purely neighbourly visit, and a stretching of the term " neighbourhood " to cover five or more miles appears to offer no insurmountable difficulty.

3. Carefully supplying details of past prowess (real or imaginary) to local gossips. They can be relied upon to act as unpaid commercial travellers. I know a doctor who has a great reputation and flourishing practice, largely on the strength of the circulated rumour that he received " The Prize for Diagnosis at the University of ——."

4. Distributing as Christmas gifts to patients (his own and others) thermometers bearing his telephone number and name. You know the first thing a woman flies to when her child becomes ill. The sequence is obvious.

The blatant advertiser always ploughs a lone furrow. He is rightly despised by his brethren, and must take what satisfaction he can from building a practice on his wits rather than on his skill.

An innocuous outbreak of advertising occasionally arises in a group of medical practitioners. I shall never forget a dinner of a branch of a medical association from which our friend with brilliant car and prize for diagnosis was first called out, followed in rapid succession by calls for his immediate rivals. As the medical community dwindled and the important lay guests became duly impressed by its activities, a sudden epidemic of urgent calls swept over the room (this after several members had been out to the telephone), until the guests were left to enjoy their own post-prandial orations with a few staunch medical hosts.

RELATIONSHIP OF GENERAL PRACTITIONERS TO CONSULTANTS

In the early days of general practice it may come as a shock to be asked to call in a consultant to a case of which the diagnosis is clear and the treatment unquestionable. Rather than entertaining a feeling of resentment on this account, it should be remembered that the desire for a consultant usually arises as the result of anxiety, and not lack of confidence in the practitioner. The position, for instance, of a woman whose husband has pneumonia may be a difficult one in respect of his relatives. Should the patient die, she may be exposed to all manner of abuse by his immediate family for not having called in a " specialist." It is unlikely that the consultant can render any more help to the patient than he is already having, but he can share the responsibility with the doctor and act as an effective protection for the wife against outside interference.

In any event it cannot harm a general practitioner to consult with a colleague, who will naturally do his best to quell permanently the disturbing members of the family. You will note that even they have their uses, for were it not for the anxious relative, few consultants would make a living.

There are occasions when the general practitioner is well advised to suggest the calling in of a consultant. The commonest is where he is aware of dissatisfaction of the patient on account of slow progress. It is wiser to suggest a second opinion oneself than to wait until it is demanded. The fact that progress may be in no way accelerated by the consultation is beside the point.

Again, should an operation be advised, it is wise to suggest the help of a surgeon, even though the practitioner, or his partner, be a highly skilful operator. Leave it to the patient to suggest the alternative, for reasons mentioned in the first of these lectures.

Finally, of course, a consultant may be called in to assist in arriving at diagnosis, and, as so often happens, he will appear on the scene coincidentally

with the appearance of the first diagnostic physical sign. This is always annoying, but no colleague would, or should, ever make capital out of "the luck of the last comer."

It would be foolish to attempt to disguise the fact that, although the relationship of the majority of general practitioners and consultants is of the happiest, yet the very reverse may obtain. In my few years of general practice I met instances of incredibly discourteous behaviour on the part of one or two specialists of other hospitals, who should certainly have known better, but nothing can be gained by quoting examples. I shall, however, enumerate the principal sources of discord between these two branches of our profession for their mere appreciation may help towards their elimination.

A. *Faults largely those of Consultants.*

1. Attitude engendered in some hospitals that many general practitioners become progressively less capable the longer they have been qualified. It should be borne in mind that many of our much-vaunted advances in scientific knowledge cannot compare in practical value with that obtained from the observation of disease from its inception to termination. Remember, too, that specialists, like examiners, judge efficiency solely in relation to their own subject. Put, shall we say, a physician into general practice for a week, and offer him as a start a transverse presentation, and I think we should find a re-arrangement of his ideas of relative efficiency.

2. Consultants failing to communicate with doctors about patients whom they have seen. Nowadays, when the majority of appointments are made by telephone to a secretary, it is impossible for a consultant to avoid the occasional admission of a patient who has come without introduction from his (usually her) doctor. On the other hand, there is no excuse for not inquiring for the name of the general practitioner, informing the patient of the error of her ways, and finally writing to the doctor in charge. A little trouble will thus avoid all misunderstanding.

3. Deliberately attempting to induce a patient who has been sent up by, or come unknown to, a doctor to place himself in the consultant's hands for treatment without the express sanction of the general practitioner. This is quite indefensible.

4. Failure to appreciate the importance which patients attach to diagnostic labels. A consultant should always discover what the doctor has diagnosed as the malady. Otherwise one may be faced with the ridiculous situation of a patient disgruntled with the general practitioner who diagnosed rheumatism whilst the "specialist" labelled it arthritis. There is a class of patient who delights in obtaining a different verdict from a specialist, and nothing will induce him to recognise that a difference does not, in fact, exist. This type is yet more pleased if a quack will make mincemeat of a consultant—and, of course, he always will.

5. Making capital out of a diagnosis that has been missed, to the discomfiture of the doctor. How often might not the boot be on the other foot!

B. *Faults of the Patient.*

1. Calling in a consultant and assuring him that they have no local doctor when such is not the case.

2. Having once been sent to consultant by general practitioner, calling subsequently without the latter's knowledge. The consultant, of course, puts a stop to this, but is frequently quite unfairly suspected of connivance.

3. Misquoting statements made by consultants and/or practitioner.

C. *Faults of the General Practitioner.*

1. Permitting patients to gain by plea of poverty which is non-existent.

2. Calling in consulting surgeons only in cases where an operation has proved to be beyond the local doctor's powers, but providing them with all the local hospital work. I have known extreme instances of this in which an unfortunate individual has been opened for suspected appendicitis, but more serious disease being discovered, has been sewn up and then re-operated upon by a hastily summoned surgeon. This is unfair to patient and surgeon.

3. Insisting on personal telephonic conversation with consultant (who may be in the middle of an examination) in order to elicit information about a patient seen at hospital. In the first place, as you know, out-patients are not known by name. In the second and subsequent places there are many reasons why this should not be done.

4. Failing to answer letters from consultants inquiring about progress of patient they have seen.

Looking back on this list of grievances you will realise that most of them are due to lack of thought rather than to deliberation. In any case, I would impress upon you that all these sins apply to a very small minority of general practitioners, consultants and patients, and, taken as a whole, they all get along very cheerfully without undue "grousing."

CONCLUSION

If in this general survey I have stressed many of the less desirable aspects of practice, my excuse is that it is precisely this side of the work of which the young doctor is left in harmful ignorance. Considered superficially, the life might be assumed to consist of a wild race against time, involving loss of sleep, irregular and disturbed meals, battles with relatives, commercial travellers, bad debts, disloyalty, and the final development of ill-health leading to ultimate peace. Let me then hasten to correct that impression by touching on the happier and heavily preponderating side.

General practice is the most fascinating branch of all medical work, not only because every subject belongs to its devotees, but more because of the unrivalled opportunity of close contact with, and study of, human beings apart from their diseases. Friendship with those in the most diverse walks of life is of itself an education denied to those in consulting work. The majority of fellow practitioners and patients are a joy to meet, whilst the work itself is unquestionably fascinating. Anyone who decries general practice as a bore is either ignorant of the subject, or has been too blind to recognise the interesting diseases, though present in profusion.

The general practitioner is assured of an adequate livelihood, can take holidays without fear of heavy financial loss, and, when the time comes to die, even this episode can be viewed with comparative equanimity by virtue of the capital value of his share in the practice added to that of his insurance policy. Thus are his dependents enabled to witness his exitus with some degree of stoical resignation.

The Immediate Treatment of Ambulatory Fractures

By A. T. Fripp, F.R.C.S.

WHILE it is sometimes a matter of opinion and personal experience whether a certain fracture requires operative interference or not, the common injuries not requiring to be admitted into hospital fall into a few well-defined groups, and I propose in this article to suggest a line of treatment for each group without entering into the pros and cons of every line of treatment that has been put forward. I shall also limit the treatment to that necessary for the first 24 hours after the patient is seen in the Casualty Department.

The first essential of treatment is accurate diagnosis, and the importance of an X-ray examination, in every case in which a fracture is suspected or even possible, cannot too strongly be urged. There are still too many cases in which a fracture is missed, often with disastrous consequences to the patient or the practitioner.

GENERAL PRINCIPLES

1. Complete anatomical restoration should be aimed at in every case, and it is seldom an adequate excuse in the arm, and never in the leg, to say that there will be a good functional, in spite of a poor anatomical, result.

2. The age of the patient is the chief indication for abandoning the principle given above. In an elderly patient tendons and ligaments tend to become stiff and it may be better—for example, in a bad Colles—to aim at keeping the limb supple rather than at complete reduction.

3. Any splint or plaster applied should be seen within 24 hours. The œdema may have increased or decreased, and in either case pain or pressure sores may be the result.

4. A general anæsthetic is better than gas: firstly, because it is often difficult to get complete relaxation with gas; and secondly, because there is no hurry in applying the splint or plaster.

COMPLICATIONS

The complications of fractures mostly arise later on in the course of treatment, and it is only necessary to mention two.

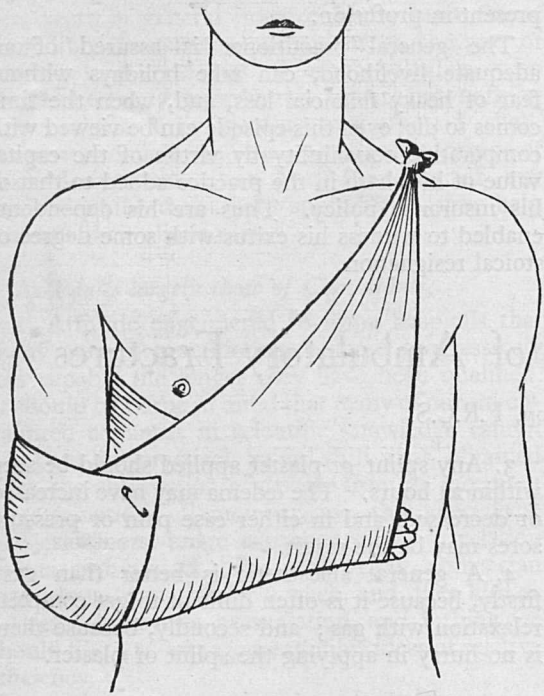
1. Volkman's Ischæmic contracture. This will be considered in discussing injuries around the elbow joint.

2. Fractures involving a joint. These cases must be treated with a view to getting as perfect alignment of cartilage as possible. In particular, the bad results following Pott's fractures are due not to the fracture of the fibula, but to the lateral displacement of the astragalus that is commonly present. If this is neglected, a traumatic osteo-arthritis is bound to follow later.

CLAVICLE

Fracture of the shaft occurs at the junction of the two curves about the middle, and there is usually some angulation or overlapping of the fragments. To reduce the deformity the patient should lie on a couch and then the shoulder is carried gently upwards, backwards and outwards.

Fixation is best carried out by the "Braces" method. Two hoops of flannel bandage or lint are passed, one over each arm, up to the axilla and are pulled firmly together across the back by a third piece. The arm is carried in a sling, and it is more comfortable if this is so arranged that both ends pass over the sound shoulder. In this way pressure over the site of the fracture is avoided.



Sling arranged for a fractured Clavicle, so that there is no pressure over the site of the fracture.

Fracture of the outer end occurs between the attachments of the conoid and trapezoid ligaments, and there is usually little or no displacement. A sling may be sufficient, but if the shoulder is dropped a pad of felt should be placed over the outer end of the clavicle and a wide bandage carried under the elbow and knotted over the pad. Then to prevent the bandage slipping off, the ends of the bandage are left long enough to be taken round the chest and tied in the axilla of the opposite side.

If it is important to get a perfect cosmetic result the patient is best treated in bed. She should lie on her back with a sandbag between her shoulders.

Sayre's method is frequently used, but it gives no better results and is open to the following objections :—

1. The forearm is fixed.
2. The position is cramped and uncomfortable.
3. Œdema of the hand often follows.
4. Cases of ischæmia have been known to occur.

Dislocation of the acromio-clavicular joint is treated in the same way as a fracture of the outer end of the clavicle. It should be noted that there is normally a considerable space between the clavicle and the acromion, and the X-ray appearance may suggest a dislocation when, in fact, the joint is not injured.

SCAPULA

The body of the scapula is the commonest site of fracture, and is best treated by firm strapping round two-thirds of the chest and a sling. Displacement is usually negligible, being prevented by the overlying muscles. Fracture of the neck or the acromion is rare, treatment as for the outer end of the clavicle is best. In fractures of the glenoid the arm should be fixed in abduction.

HUMERUS

Fractures of the humerus may be divided into those of the upper end, of the shaft, and of the lower end.

(*a*) *The Upper End.*—Fracture of the neck is a common injury. If it is impacted in good position, care must be taken not to disimpact. The arm is supported in a sling with a small pad in the axilla, and is then bandaged to the side, with a view to starting massage at once and gentle movements after three or four days.

If it is not impacted, the upper fragment is abducted and the lower one pulled upwards and inwards below the coracoid process. Under an anæsthetic, while traction is applied, the deformity can often be reduced and the ends firmly interlocked. In this case it can be treated as an impacted fracture, and the arm brought gently to the side, care being taken to support the elbow in the sling. If the ends cannot be interlocked the arm must be fixed in abduction and moderate external rotation.

Fracture of the great tuberosity may occur with a fracture of the neck or by itself, or it may complicate a dislocation of the shoulder. If the displacement is slight the arm should be fixed in abduction and external rotation, so that later on callus does not block abduction ; but if there is gross displacement operation is the only satisfactory treatment, when the fragment can be either fixed in its proper position or excised. Separation of the epiphysis occurs in children and often with impaction. The treatment is the same as for fracture of the neck in adults.

(*b*) *The Shaft.*—Before any treatment is embarked upon the musculo-spiral nerve must be examined. It is not often injured, but failure to notice the injury at the time may lead the patient

to think that it was due to the practitioner and not to the accident. In most cases it is sufficient to immobilise the arm either with an aluminium postero-external splint or with a series of laths bandaged round the arm, and then to bandage the arm to the side. The weight of the arm usually overcomes the shortening, but if this is not the case the patient must be admitted and extension applied with a Thomas's splint.

Obstetrical Fracture.—The arm may be broken during birth. The deformity, as seen in the X-ray, often looks rather alarming, and there is frequently a paresis of the musculo-spinal nerve. But the deformity disappears completely in two years, and the paresis is only temporary. For treatment it is only necessary to bandage the arm to the side.

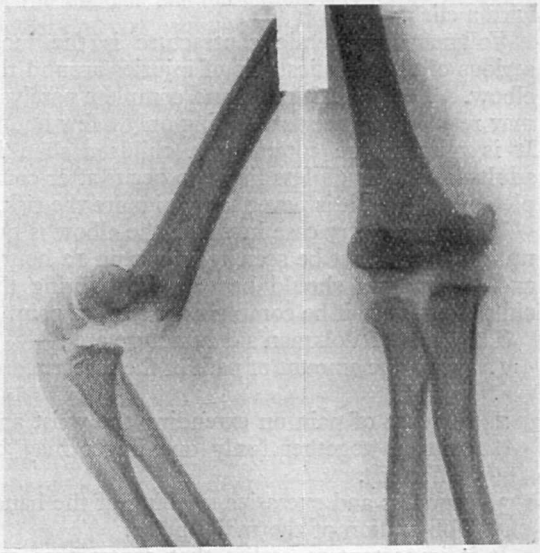
(*c*) *Lower End.*—As a general rule injuries about the elbow joint should be treated, after reduction if necessary, with the joint in a position of 40° flexion, the exception being fracture of the olecranon. The advantages of this position are :—

1. In supracondylar fractures the tendency of the lower fragment to be displaced backward is prevented, as, with the elbow flexed, the lower end of the humerus lies in front of the long axis of the bone and the triceps acts as a sling supporting the fragment.

2. A full range of movement is more easily obtained. Extension will follow later, but if flexion is not insisted upon from the first it is very difficult to regain afterwards.

3. Flexion diminishes the danger of myositis ossificans. Supracondylar fracture is a common injury. Usually the lower fragment is displaced backwards and pulled upwards, but is occasionally rotated or displaced forwards. Separation of the epiphysis is also described in children, but actually this is a fracture of the shaft.

Perfect reduction is very important, and is seldom difficult. Complete relaxation under an anæsthetic is essential. Then while the upper arm is firmly held by an assistant, the elbow is first hyperextended and the forearm supinated. The surgeon then pulls in the long axis of the arm and, pushing the prominent upper fragment backwards, flexes the elbow. While the arm is straight and supinated allowance must be made for the carrying angle, so that the forearm is abducted 10°-15°. If reduction is complete, the fragments interlock and there is little danger of re-displacement. The elbow is then easily brought up to 40° flexion, but if flexion is difficult it usually means that the displacement has not been completely corrected. The wrist is then slung to the neck by the " collar and cuff," method and the forearm fixed to the arm by a strapping or bandage. Full flexion is unnecessary and dangerous.



Supra condylar fracture of the humerus in a child. The lower fragment is tilted backwards. The epiphysis for the capitellum can be seen in the lateral view, and that for the internal condyle in the antero-posterior view.

Forward displacement may occur either at the time of injury or following too vigorous reduction. In either case the displacement must be reduced and the forearm allowed to lie in a position which maintains the correction—either the routine position or more nearly at a right angle. The position should be checked by an X-ray.

One condyle, more commonly the external, may be split off, with the line of fracture running into the joint, or the fracture may be T-shaped. If there is gross displacement, an attempt may be made to manipulate the fragments into position. If this is successful, the arm is put up in flexion, and often the position of the fragments remains unsatisfactory and open reduction is necessary. The internal epicondyle is sometimes torn off, and in children may be displaced into the joint. In this case the piece must be excised.

DISLOCATION OF THE ELBOW

Dislocation of both bones usually occurs backwards and may be complicated by a fracture of the coronoid. It is reduced by hyperextension, traction of the forearm, and then flexion. After-treatment is by the routine position of flexion.

Dislocation of the radius alone may be either forward or downward. Forward dislocation may be reduced by pressure over the head of the radius while traction is exerted and the forearm flexed.

Downward dislocation or " pulled forearm " occurs only in children up to the age of four years. It can be reduced, without an anæsthetic, by

traction and supination and the head goes back with a click.

Volkman's ischæmic contracture is the most serious of all complications of injuries around the elbow. The onset is rapid and complete paralysis may result from pressure lasting only a few hours. It is much more common in children than in adults, and, though less liable to occur after complete reduction, it is never safe to ignore the risk.

Therefore, every case in which the elbow is put up in flexion must be seen again within 12 hours, and the mother should be warned to bring the child up at once if he complains of a lot of pain.

The signs of Volkman's contracture are :—

1. An undue amount of pain in the forearm and hand.
2. Increase of pain on extending the wrist and fingers together (only one finger may be affected).
3. Blueness and excessive swelling of the hand.
4. Obliteration of the radial pulse.

It is important to realise that contracture can occur in spite of the radial pulse being palpable, and therefore this is not necessarily a sign that all is well.

The treatment is immediately to take off all splints and bandages from the elbow, apply a long cock-up splint with a sling, and start massage and passive stretching. All degrees of contracture occur from the classical and hopeless deformity to an inability completely to extend one finger. In the less severe cases the prognosis is quite good if treatment is started early.

ULNA

In fractures of the olecranon there is usually so much separation that open reduction is necessary, but if there is only a crack without any separation the olecranon is held in place by the expansion of triceps insertion and the arm can be fixed in extension.

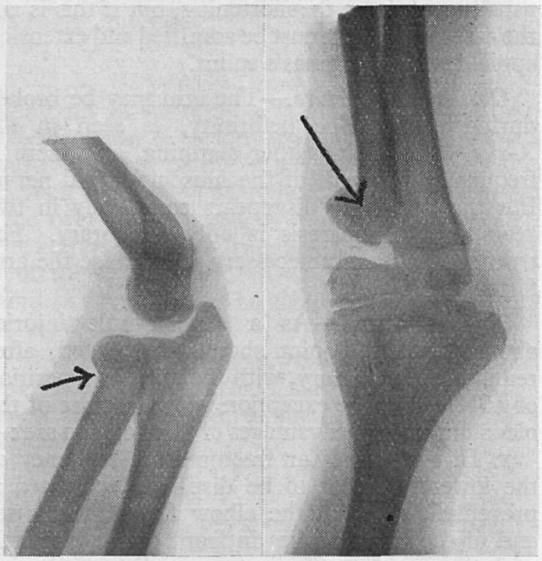
Fractures of the coronoid process only occur with a posterior dislocation of the ulna, and must be treated by the routine position of flexion.

In fracture of the shaft the upper fragment may be pulled forward by the brachialis anticus muscle. Treatment is by a posterior gutter splint or light plaster and a sling for the forearm. If deformity is marked it is difficult to reduce by manipulation, and operation is probably necessary.

This fracture may be complicated by a forward dislocation of the head of the radius. In this case the dislocation must be reduced and the elbow flexed. It is rather easy to miss the dislocation unless a strictly lateral X-ray is taken.

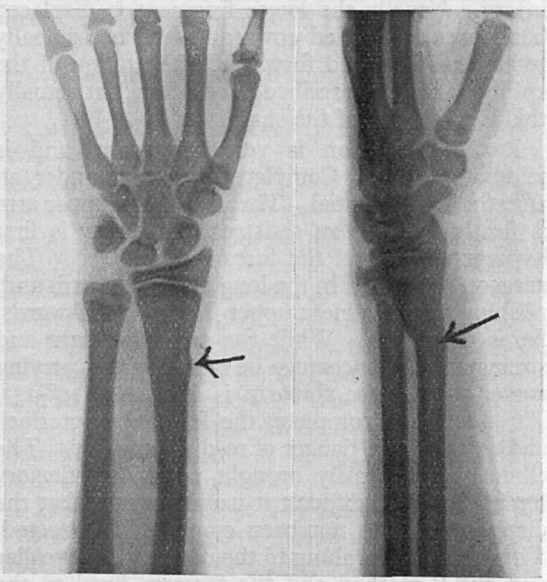
RADIUS

Fracture of the head may consist merely in a crack across the head into the joint. In this case the elbow should be fixed in flexion and supination. If, however, a segment of the head is displaced flexion becomes impossible, and either replacement or removal of the fragment by operation is necessary.



Fracture of the neck of the radius. The head is displaced outwards and tilted outwards.

In fractures of the neck the amount of displacement depends upon whether the orbicular ligament is torn. In most cases the elbow should be put



Greenstick fracture of the radius with slight angulation backwards.

up in flexion without any attempt to reduce the displacement. The results of operation, whether to replace the head or to excise it, are disappointing, and it is better to delay operation until it is clear what the final disability will be. Fracture of the shaft may occur with little deformity, and in these cases a posterior splint or light plaster to keep the arm supinated is sufficient. If there is displacement the upper fragment is flexed, supinated, and pulled towards the ulna by the pull of biceps. Reduction is usually possible with an anæsthetic by strong traction with the forearm supinated. After the position has been checked by X-ray the reduction is best maintained by a plaster put on while traction is still being kept up.

RADIUS AND ULNA

The shafts of both bones may be broken. There is usually some overlap with angulation, and the two bones are bent towards each other. Reduction by strong traction with the forearm supinated should be attempted, if possible, on the X-ray table, and the arm plastered in this position. In these cases, and when only one bone is involved, if the position is not satisfactory it is better to get complete reduction by operation.

In greenstick fractures in children of one or both bones angulation must be corrected, and the arm well supinated. We find that, even if there is no deformity, this movement is often permanently lost and routine treatment by full supination, preferably in plaster, is the only way of making sure of a full range of movement afterwards. It should be remembered that Volkman's contracture may follow forearm fractures if the swelling increases after the manipulation and the arm is put up with anterior and posterior splints.

LOWER END OF RADIUS

Some years ago it used to be said that a Colles' fracture, which was undiagnosed and, therefore, untreated, did better than one which was treated. That dictum only applied to a fracture without displacement—and called "sprained wrist"—which then avoided the treatment of those days, consisting in complete immobilisation for two or three weeks.

A Colles' fracture without displacement needs no splint. The arm is carried in a sling and massage started immediately. If, however, there is displacement it must be reduced under an anæsthetic. To reduce a Colles in the left hand an assistant holds the arm firmly just below the elbow and the surgeon grasps the patient's hand in his own left hand and dorsiflexes the wrist to increase the deformity. Then he exerts strong long axis traction, at the same time pressing the lower fragment downwards and forwards with the right thumb. If reduction is complete, the shape of the hand is restored, there should be no radial deviation, no "dinner-fork" deformity, and the radial styloid has regained its position distal to the ulna styloid. But radial deviation is in many cases due to actual loss of substance from the crushing of the spongy bone, and, therefore, often cannot be corrected.

As to the treatment that should follow there is much difference of opinion. It has been taught that if reduction is complete the fragments interlock and there is little danger of re-displacement. In practice, however, X-ray shortly after a satisfactory reduction shows some displacement in a disappointing number of cases. Sir Robert Jones advises two gutter splints, the anterior extending from the elbow to just above the wrist joint and the posterior down to the level of the heads of the metacarpal bones. If reduction is complete these should be left on for two weeks, but if manipulation has not been successful the splints should be removed and active movements started at once. With posterior displacement the grooves on the back of the radius are upset, and after two weeks' immobilisation the extensor tendons become adherent over the fracture.

In elderly people it is often better not to attempt reduction, but to start movements of the fingers at once and of the wrist in a few days. For these cases a short cock-up splint should be used.

In Smith's fracture or the "Reversed Colles" the lower fragment is displaced forward and must be reduced.

Separation of the lower epiphysis of the radius with displacement backwards and upwards.

In " Chauffeur's " fracture there is a crack through the radial styloid without displacement. A sling and early movements are sufficient.

Separation of the lower epiphysis of the radius with displacement backwards and upwards.

Separated epiphysis with backward displacement must be reduced and then fixed in supination for the reasons given with a greenstick fracture.

Comminuted fracture of the lower end is best treated by a short cock-up with early movements to the fingers. It is seldom possible to improve the position by manipulation.

CARPUS

The scaphoid is the only bone commonly broken, and the injury is liable to be overlooked and diagnosed as " a sprained wrist." The wrist should be immobilised in full dorsiflexion.

Most plasters or splints applied to immobilise the wrist are carried too far distally. The plaster should end at the proximal transverse crease in the hand with a large hole cut for the thumb, so that full flexion is allowed at the metacarpo-phalangeal joints. Similarly, a long cock-up splint should never be used for these cases.

METACARPALS

In fracture of the shaft of metacarpals deformity is usually slight, and the hand may be bandaged over a tennis ball. Two fractures occur at the base of the first metacarpal :—

(*a*) Bennett's fracture when a small fragment is detached from the base so that the joint is involved.

(*b*) Impacted fracture of the base.

In the first the thumb should be immobilised over a tennis ball after the deformity has been reduced by traction. The impacted fracture is less serious, since the joint is not involved, and strapping arranged in a figure of eight is sufficient.

PHALANGES

In fracture of the proximal phalanx there is often some angulation forward, and it is very important to correct this. The resulting disability in a working man is often out of all proportion to the injury, which is apt to be considered trivial. It may be reduced either by manipulation and the hand then bandaged over a tennis ball, or by continuous traction. In this case a gutter splint with a wire ring is fixed to the forearm and strapping applied to the finger, so that it can be attached to the wire ring by turns of an elastic band. For fractures of the shaft without deformity a straight splint is adequate.

Small fractures with a chip off the head or base of a phalanx are very troublesome afterwards, and a guarded prognosis should be given from the first as the joint often remains swollen, stiff and painful.

The base of the terminal phalanx may be torn off with the extensor tendon. The finger must be fixed in full extension.

TIBIA

Fractures of the upper end are not suitable for ambulatory treatment.

In fractures of the shaft when the fibula is intact the shortening of the leg is very slight, and the angulation and torsion are easily corrected under an anæsthetic. A plaster is then put on from the level of the toes to six inches above the knee. It must be remembered that the tibia is normally slightly bowed in the lower two-thirds, and this should be allowed for when the leg is being put up. If the tibia is put up straight, the patient will walk with the ankle joint everted, and this will result in a secondary flat foot.

A greenstick fracture in a child needs only a light plaster and need not extend above the knee.

In fracture of the internal malleollus, although it involves the ankle joint, there is usually no displacement, and a plaster not including the knee and with the foot dorsiflexed is sufficient.

TIBIA AND FIBULA

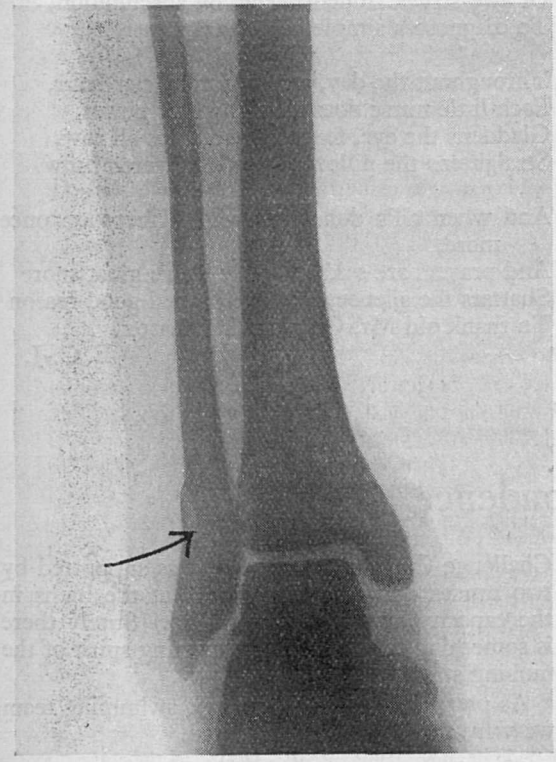
If there is little deformity, a plaster as for a fractured tibia is sufficient, care being taken to preserve the normal bowing and to prevent external rotation of the foot. If there is any appreciable degree of overlap full anæsthesia and a steady traction are necessary in order to get full correction.

FIBULA

(*a*) *Fractures of the Shaft.*—If the tibia is intact, the displacement is usually slight and a splint is not necessary. Firm strapping will give a sense of support, and massage should be started at once.

(*b*) *Fracture of the External Malleolus.*—A small fragment may be chipped off by direct violence or torn off by the external lateral ligament without involving the ankle joint. This is not a Pott's fracture, and strapping is all that is necessary.

A Pott's fracture is an oblique fracture of the external malleolus, and either the internal malleolus is torn off or the internal lateral ligament is ruptured at the same time. Lane divided the injury into three types :—



Pott's fracture without displacement.

1. Fracture without any displacement of the astragalus.

2. Fracture dislocation with the astragalus displaced laterally on the tibia.

3. Fracture of the "third malleolus" or posterior articular surface of the tibia, so that the astragalus is displaced backwards as well as outwards.

The essential part of the treatment of this injury is the complete reduction of any displacement of the astragalus, and then the retention of the ankle in the corrected position.

Reduction.—Full anæsthesia is necessary. Then traction is applied to the foot and at the same time pressure exerted inwards over the external malleolus and os calcis. A plaster is put on fitting closely to the leg, so that the foot is in dorsiflexion and mid-way between inversion and eversion.

The more usual practice is to attempt reduction by inverting the foot and then to maintain this position in the plaster. But this is mechanically incorrect. The eversion of the foot that so often remains is secondary to the displacement laterally of the astragalus occurring at the time of the injury, and the displacement can only be fully corrected by pressure inwards over the astragalus. Inversion occurs at the astragalocalcaneal joint, and inverting the foot cannot have the effect of pulling the astragalus directly inwards at the ankle joint.

One other point may be mentioned. The heel of the plaster must always be cut out, but a pressure sore when it occurs is always over the lower part of the Achilles tendon, and therefore this is the part of the plaster to be cut out rather than that over the lower surface of the os calcis.

In Dupuytren's fracture the inferior tibiofibular ligament is torn and the astragalus is displaced upwards between the two bones. Manipulation is occasionally successful, but operation is usually necessary.

TARSAL BONES

Astragalus.—This usually needs open reduction and reposition of the fragments.

Os Calcis.—The common fracture is caused by the patient falling from a height on to the heels, and often the injury is bilateral. It may be comminuted, and always involves the subastragaloid joint. It is impossible to improve the position by manipulation, and a plaster boot to prevent weight bearing is sufficient. The prognosis is bad, as a traumatic arthritis always follows after the patient has started to walk on it again.

The posterior surface may be torn away by the Achilles tendon. Replacement by open operation is necessary.

METATARSAL BONES

One or more of the metatarsals may be broken if the foot is crushed. The transverse metatarsal arch is usually lost and the foot should be immobilised in plaster with the arch restored.

PHALANGES

The displacement can be disregarded. If there is much bruising, hot fomentations will relieve the pain.

I wish to thank Mr. E. G. Slesinger for his help. Most of the methods described above have been evolved or proved during his long experience as surgeon to the Fracture Department. I also wish to thank Mr. C. Lambrinudi for his advice and criticisms.

Another Day

The actinic index on the chimney high
Stands yet at zero when, as dawn draws nigh,
The clatter of the bread and butter tray
Bids sufferers wake to greet the approaching day.

A sudden glare of lights shines through the dusk
On convalescent's egg and gastric's rusk;
Then in the bathroom small all forty squash,
To shave and talk and smoke—a few to wash.

With Brasso's aid the bed-post yields its rust,
While wardmaid's tea-leaf lays the cowering dust;
Above, the feathers of the junior pro.
Brush the light cobwebs on to me below.

Brings the young paper-boy, with dimpled grin,
News of the world without to us within;
To Thirty-seven's aid, that poor old crock,
Come beefy sirens from the Massage block.

Then smart young men, keen-eyed like cinema stars,
H.P.'s, Ward-clerks and striped-bagged Registrars,
Bring arts, more subtle far than any wizard's,
To bear upon the problem of our gizzards.

Great specialists come, when they have had their lunch,
From Harley Street and lecture to a bunch
Of awe-struck students how, by auscultation,
To diagnose a simple constipation.

Throughout the day, at seven miles per hour,
Each little nurse does all within her power,
Gladdens the eye, feeds us and stops all row,
Straightens the pillow, blows on fevered brow.

And when all's done, and night creeps on once more,
And prayers are said and only Ten's great snore
Shatters the silence, we have darned good reason
To thank old Mr. Guy and Mr. Eason.

E. C.-J.

Correspondence

The Inter-Hospital Nurses' Swimming Gala

To the Editor of the GAZETTE

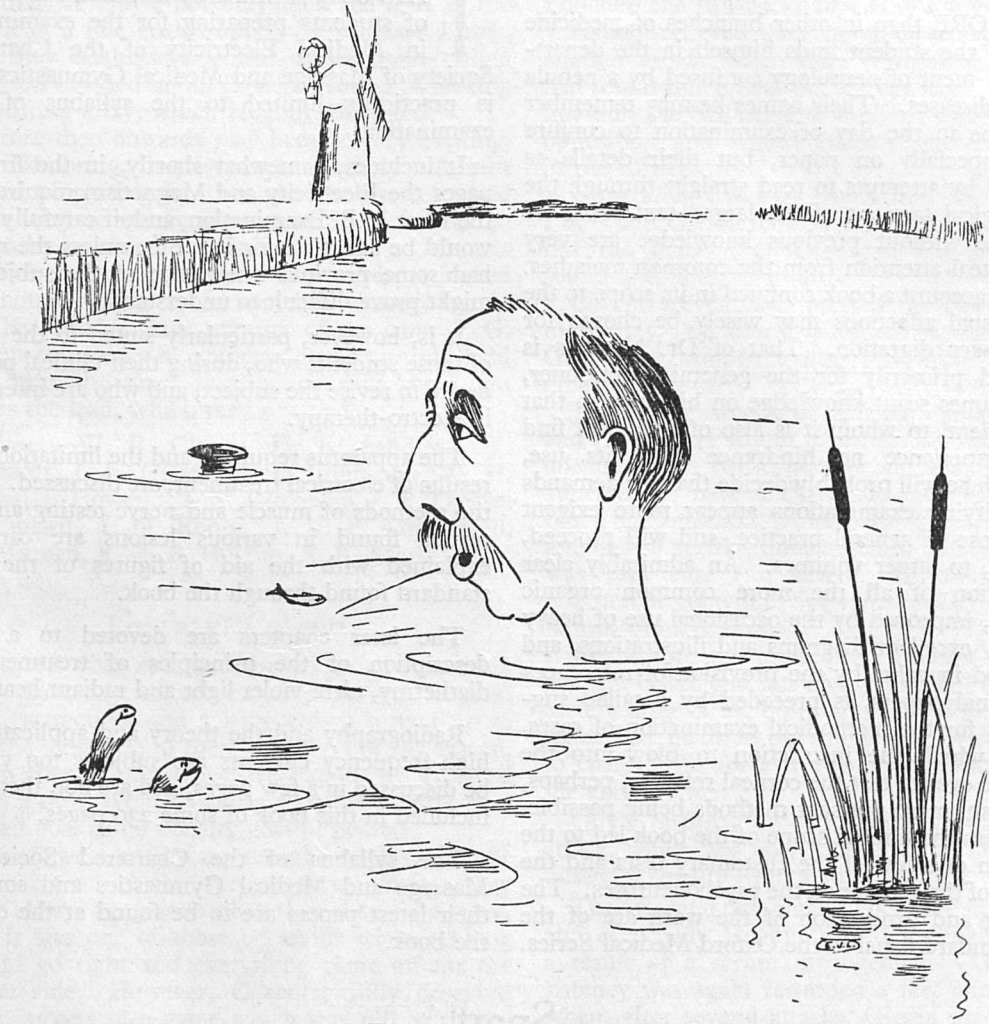
SIR,—Can it be possible that Guy's nurses have lost the enthusiasm for swimming shown by them in the past?

At the Inter-Hospital Nurses' Swimming Gala this year the solitary representative of Guy's, who reached the Finals and won for the Hospital the Challenge Cup for neat diving, was supported by two nurses only—and they were at the baths in the capacity of programme sellers. Surely there is something wrong with the sporting spirit of the nursing staff!

As past members of the Guy's swimming team we were more than disappointed.

Yours, etc.,

TWO OLD GUY'S NURSES.



"Forensic Fortitude"

Reviews

Commoner Nervous Diseases for General Practitioners and Students. By FREDERICK J. NATTRASS, M.D., F.R.C.P. Pp. 218, figs. 15 and 2 coloured plates. Published by Humphrey Milford, Oxford University Press. *Price* 12*s.* 6*d.* net.

MORE than in other branches of medicine the student finds himself in the department of neurology confused by a nebula of rare diseases. Their names he may remember and hope in the day of examination to conjure with, especially on paper, but their details as amassed by attempts to read straight through the neurological sections of the larger text-books of medicine without previous knowledge are very apt to steal attention from the common maladies. On this account a book confined in its scope to the more usual affections may wisely be chosen for preliminary digestion. That of Dr. Nattrass is intended primarily for the general practitioner, but assumes scant knowledge on his part, so that the student, to whom it is also offered, will find his inexperience no hindrance from its use, although he will probably decide that the demands of qualifying examinations appear more exigent than those of general practice, and will proceed, unsated, to larger volumes. An admirably clear description of all the more common organic diseases, improved by the occasional use of heavy type, by excellent diagrams and illustrations, and increased in value by the provision of references to original papers, is preceded by detailed suggestions for the methodical examination of cases, among which the instruction to blow into the patient's eyes to test the corneal reflex is, perhaps, a blemish, more pleasant methods being possible. Doubtless the limited scope of the book led to the omission of a few of the customary tests and the brevity of the chapter on the psychoneuroses. The printing and production of the work are of the high standard usual in the Oxford Medical Series.

Medical Electricity for Students. By A. R. I. BROWN, F.S.R. Third Edition. Published by Humphrey Milford, Oxford University Press. *Price* 12*s.* 6*d.* net.

THIS book is primarily intended for the use of students preparing for the examination in Medical Electricity of the Chartered Society of Massage and Medical Gymnastics, and is practically limited to the syllabus of that examination.

It includes, somewhat shortly, in the first 80 pages the Electricity and Magnetism required for the First M.B. Examination, and, if carefully read, would be adequate for it. But, unless the reader had some previous knowledge of the subject, it might prove difficult to understand.

It is, however, particularly suited to the needs of those students who, during their clinical period, desire to revise the subject, and who are interested in electro-therapy.

The apparatus required, and the limitations and results of electrical treatment, are discussed. And the methods of muscle and nerve testing and the results found in various lesions are carefully explained with the aid of figures of the high standard found through the book.

The later chapters are devoted to a brief description of the principles of treatment by diathermy, ultra-violet light and radiant heat.

Radiography and the theory and application of high-frequency currents are subjects too vast to be discussed in a few pages, and are not, therefore, included in this book of some 230 pages.

The syllabus of the Chartered Society of Massage and Medical Gymnastics and some of their latest papers are to be found at the end of the book.

Sport

Rugby

Guy's v. Cambridge University

AT Cambridge on Wednesday, October 28th, the Hospital showed much better form than in their match against the Harlequins, and were very unlucky to be defeated in the closing minutes of the game by the narrow margin of 3 points—the Light Blues scoring a placed goal, a dropped goal and a try (12 points), to which the Hospital replied with a placed goal and a dropped goal (9 points).

Guy's made one change in the side which played at Twickenham—A. R. Clarke coming into the pack in place of R. J. Drummond; whilst the 'Varsity, owing to injuries, had several changes in their back division.

During the first half, Guy's attacked repeatedly, but the Light Blues had a remarkably good defence and, assisted by Askew's lengthy touch-finding,

they prevented the Hospital from crossing their line until after the interval. On the run of the game, Cambridge were a trifle fortunate to lead at half-time by a try, which was scored by Pope earlier in the game. On the other hand, Guy's should have scored on two or three occasions, but good openings were spoilt by faulty passing.

After the breather, the game became very exciting, as Guy's not only took the lead as the result of a fine goal dropped by Windsor Lewis, but they established a lead of six points when Johnson finished off an excellent round of passing by scoring a try, which Hogbin converted.

From then onwards play became very exciting, and Cambridge improved considerably. A neat round of passing by their three's was rewarded with a try scored by Rees, and Smeddle had no difficulty in adding the extra points.

With the exchanges now fairly even it looked as though Guy's would snatch a victory, but in the last two or three minutes of the game J. G. Askew dropped a magnificent goal from mid-field and near the touch-line, which gave the Light Blues the lead, which they retained.

Team.—W. R. Clegg; D. E. Ashdown, T. Fichardt, J. E. Giesen, A. G. Johnson; W. H. Lewis, J. Howell; J. S. Batchelor, J. P. O'Shea J. Cunard, I. G. Robin, J. R. F. Popplewell, T. Morgan, R. A. P. Hogbin, A. R. Clarke.

Guy's v. Coventry

THE visit of the Hospital to Coventry on Saturday, October 31st, proved a great attraction, and a large crowd turned up to see the local side in their best form of the season, when they gained a decisive victory by a placed goal, 2 dropped goals and 3 tries (22 points), to a placed goal and a penalty goal (8 points).

Guy's were not by any means out-played in the manner in which the score suggests; in fact, they were always dangerous when they got on the move, but it was one of those occasions when nothing would go right and everything came off for the home side. However, Coventry fully deserved their success in a game which was full of thrills, through their ability to turn to account any opportunity that presented itself.

Guy's made one change in the side which did duty at Cambridge, and in the pack D. N. Leeming took the place of J. Cunard, who was unable to make the journey. On the other hand, Coventry fielded a powerful side, which included all their regular players with the exception of Lole, the stand-off half, who was injured. Roberts, who was hooking for Coventry, played a great game, and was largely responsible for the success of the pack, who repeatedly obtained the ball for the backs. In the first few minutes his efforts were rewarded, when, as the result of good hooking in the set scrums, Charles secured and, after a splendid run, sent in Wilkinson via Gascoigne for an unconverted try.

Following this reverse the Hospital pressed for a time in the home 25, but good tackling by Boucher, the full-back, kept Guy's at bay.

Having relieved their lines, Coventry initiated another attack which bore fruit, after Harriman had found touch near our corner flag. From the line-out, the ball came to Gilbert, who eluded all opposition and scored another unconverted try in the corner.

A sparkling attack by Guy's, in which Ashdown Lewis and Giesen took part, nearly led to a score, but the defence of Coventry was particularly sound and nothing resulted.

Coventry eventually pressed the Hospital back to their 25, and, after Rowley had missed a chance, Gascoigne dropped a neat goal from 20 yards' range.

The teams were now playing robust football, and Guy's were all out to reduce the lead; Lewis opened up on two occasions and when Ashdown appeared to have a chance he was pushed into touch by Coulson. Windsor Lewis made repeated attemps to set the three's going, but the tackling was very sure and severe. However, on one occasion he got within five yards of the posts before he was brought down.

Just before the interval an attempt to drop a goal by Gascoigne was charged down, but immediately afterwards, observing that Wilkinson was unmarked, he threw out a long pass for the forward to charge over for a try, to which Gilbert added the extra points.

Guy's opened the second half with a strong attack, which was only repelled after O'Shea had missed a penalty from a good position.

The Hospital continued to hold the upper hand, and eventually Hogbin kicked a penalty goal as a result of a scrum infringement. Guy's persistency was again rewarded a few minutes later when, after several attacks, Giesen made a great run to Coventry's 25; although he was brought down by Boucher, he got in a good pass to Johnson, who was pushed into touch near the 25 line. From the line-out the Guy's forwards made such a determined breakaway that the full-back had no chance in preventing Fichardt from scoring under the posts after a glorious run, Hogbin having no difficulty in adding the extra goal points.

The home side then decided that Guy's had done enough damage and, following a mass attack, Turtington sprung a surprise by dropping a fine

goal, and immediately afterwards the home forwards dribbled the ball from half-way and Roberts touched down for a try, which was not converted.

Team.—W. B. Clegg; D. E. Ashdown, T. Fichardt, J. E. Giesen, A. G. Johnson; W. H. Lewis, J. Howell; J. S. Batchelor, J. P. O'Shea, R. A. P. Hogbin, J. R. F. Popplewell, A. R. Clarke, I. G. Robin, R. J. Drummond, D. N. Leeming.

Guy's v. Northampton

AFTER playing away from home throughout the whole of October, the Hospital renewed their list of home fixtures on Saturday, November 7th, when they entertained Northampton, who gained a well-deserved victory by 2 placed goals, a dropped goal and a try (17 points), to a placed goal (5 points).

The visitors played an extraordinary good hard game from start to finish, and, in spite of the fact that such a wide margin of points separated the two sides at the finish, Guy's did not play at all badly, and were unfortunate in not adding to their score on at least two occasions. On the other hand, two of the visitors' tries were scored as the result of intercepted passes at times when it looked as though Guy's would break through.

With P. C. Alexander now fit again, Guy's tried the experiment of playing J. E. Giesen at full-back, otherwise the side was almost identical with that which was defeated at Coventry. Northampton fielded a very strong team, but, although they were without Milward and Forge, their substitutes played a very fine game.

The scrum half had a particularly happy day, but he was assisted to a great extent by the magnificent work of their forwards, who were much heavier and faster on the ball than the Guy's pack. The visitors' full-back also played a splendid game and never put a foot wrong. His kicking was faultless, and, in addition, he dropped a fine goal early in the first half.

For the first ten minutes Guy's were without Ashdown, who was late in arriving, but during this period they were able to keep the visitors out. However, Guy's had a narrow escape in the first minute, when a dashing raid by the Northampton forwards, who carried the ball over the line, was spoilt by a knock-on, and Windsor Lewis made a clever clearance from a scrum which followed.

However, Northampton persisted in their efforts and gave the Hospital defence an anxious time; on one occasion Goodman slipped away on the blind side and was checked by Giesen, but immediately afterwards Daniells eluded Johnson and punted ahead. In a race for the ball, Coley just beat Giesen and touched down for Treen to convert. A minute or two later Northampton went further ahead as the result of a dropped goal scored by the visitors' full-back, who caught a long punt by Fichardt when nicely placed.

Guy's then improved, and a nice cut through by Alexander gave Johnson the opportunity of making plenty of ground before he was thrown into touch. Fine tackling by Alexander prevented Treen from scoring, and a free-kick to Guy's enabled W. Lewis to find touch with an excellent kick. A round of passing between the Guy's three's followed, but Northampton intercepted, and only a knock-on prevented them from scoring. Near the interval, Guy's pressed in the visitors' 25, and W. Lewis had bad luck in having a drop at goal charged down immediately in front of the posts.

The second half opened by Giesen finding touch in the visitors' 25 with a huge kick from his own 25 line. A bout of passing by Guy's broke down when Fichardt missed his pass, and soon after a splendid run by Lewis was checked by first-class tackling.

Following further passing movements by the Guy's backs, Fichardt followed up a short punt, caught the full-back in possession, and Northampton had difficulty in clearing their lines from a scrum five yards out.

Northampton then increased their lead as the result of an intercepted pass in the Guy's half. Daniells showed fine ball control when he dribbled on, and Longland, who was well up, touched down for Treen to convert.

Guy's then enjoyed a brilliant five minutes, and, after some excellent passing, Alexander made a splendid run and sent in Ashdown, who showed a good turn of speed, for a try, which Hogbin converted with a great kick from the touch-line.

Almost from the kick-off the visitors added another unconverted try by Palmer, who scored again as the result of an intercepted pass near the hospital's 25.

Teams.—J. E. Giesen; D. E. Ashdown, T. Fichardt, P. C. Alexander, A. G. Johnson; W. H. Lewis, J. Howell; J. S. Batchelor, J. P. O'Shea, R. J. Drummond, I. G. Robin, J. Cunard, R. A. P. Hogbin, A. R. Clarke, T. Morgan.

Fencing

Guy's v. Polytechnic

THE first match of the season was fought at Guy's on Saturday, October 17th, and resulted in a win for the Hospital over Polytechnic by the narrow margin of 18 defeats to 14.

The foil was lost by 5 to 4. Morris and Paterson both fought well and won two bouts each, but

Forbes succumbed to a fatal reluctancy to give the full extension, and lost all his fights.

The sabre event followed and was handsomely won by 2 defeats to 7. Morris was again in form and won all his fights. Wright, his alert agility masked by a deceptive air of lassitude, was equally successful. Irish was not up to his usual standard, and lost two fights.

The epée started badly for Guy's, the score at one time being 5—1. Hodgkin, however, managed to win his last fight, and although Morris, who was unlucky in this weapon, suffered his third defeat, Paterson rose to the occasion and easily won the final bout to give the Hospital the match.

Scores.—Foil: Morris, 1 defeat; Paterson, 1 defeat; Forbes, 3 defeats. Epée: Paterson, 1 defeat; Hodgkin, 2 defeats; Morris, 3 defeats. Sabre: Morris, 0 defeats; Wright, 0 defeats; Irish, 2 defeats.

Guy's v. "Masks."

ON Saturday, October 31st, the Hospital team visited the "Masks" Fencing Club at Aldershot for a match in foil, epée and sabre, which resulted in a loss for the Hospital of 18 defeats to 9.

In the foil event the best performance was given by Morris, whose vigorous and effective style gained him two victories. Paterson fought in a rather unconvincing manner and wasted too much energy in abortive attacks, while Monkhouse was not at all up to his usual high standard, and was defeated in all his fights.

In epée, Monkhouse, Morris and Paterson each suffered two defeats at the hands of a very strong team. Paterson especially fought with considerable skill and patience, and deserved a better fate.

The sabre event was the most evenly matched of the three, and nearly every fight was taken to the last hit. Irish showed considerable improvement on his recent form, and lost only one bout, while Morris, who was inclined to hit too hard, lost two. Wright was rather disappointing, and, although he took two of his contests to the final hit, just failed to gain the deciding point.

The scores were: Foil—Morris, 1 defeat; Paterson, 2 defeats; Monkhouse, 3 defeats. Epée—Monkhouse, 2 defeats; Morris, 2 defeats; Paterson, 2 defeats. Sabre—Irish, 1 defeat; Morris, 2 defeats; Wright, 3 defeats.

Hockey

Guy's v. Westminster Bank

PLAYED at Motspur Park on Saturday, October 24th. This was the first home match of the season, and the ground was in good condition.

Guy's won the toss, and quickly attacked, although one short for the first 10 minutes. The Bank replied, and a centre from the left wing was flicked past Schofield (0-1). After this the Hospital played up well, and two goals were scored quickly, one by Clarke after a good individual run by Dryland and the other by Lyne (2-1). Guy's maintained their lead until well on into the second half, when Westminster, who always looked dangerous, scored twice (2-3). In the last five minutes they went further ahead, scoring another couple, Hayward being off the field, hurt.

The Hospital were deservedly beaten by a side that had a superior attack, but with a little more luck they might have made a draw of it. The Bank's centre-half broke up most of the Guy's forward movements, and the latter showed distinct signs of cracking at the end.

Results.—Guy's, 2 goals; Westminster Bank, 5 goals.

Team—J. B. Schofield; F. Hayward (Capt.), F. Corfe; E. Walker, A. G. Richmond, S. M. Tinkler; R. O. F. Tilleke, J. W. Dryland, H. O. Lyne, L. Trethowan, C. A. Clarke.

Guy's v. Kingston G.S.

PLAYED at Motspur Park on November 4th. Guy's were at full strength and played their best game of the season. The forwards in particular worked very well together and were always dangerous.

In the first half Dryland scored an extremely good goal from a centre, and in the second he added another. Kingston twice drew level, but the Hospital did not crack up in the last 20 minutes as they have been rather in the habit of doing of late, and Tilleke scored the winning goal five minutes from the end.

Cooper played a hard game at inside right and fitted in well with the rest of the forwards. The defence was not quite so impressive, and several times the Kingston outsides were given too much scope.

Result.—Guy's, 3 goals; Kingston Grammar School, 2 goals.

Team.—J. B. Schofield; G. N. Carrell, F. Hayward (Capt.); T. F. Todd, A. G. Richmond, S. N. Tinkler; R. O. F. Tilleke, J. W. Dryland, H. O. Lyne, H. G. N. Cooper, C. A. Clarke.

On Saturday, November 21st, the Hospital side is playing the Oxford University Occasionals at Motspur Park. Bully-off, 2.45. Any support will be very welcome.

Hospital Information, etc.

Pass List

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October, 1931.

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B. G. F. Turner
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W. E. A. Watson

Papers by Guy's Men

W. H. Jewell. Epithelioma of vocal cords four years after operation. Osseous new growth of ethmoid. *Proc. R.S.M.*, 1931, xxiv, 1635, 1644.

E. G. Little. Lichen planus of limbs and scalp. *Proc. R.S.M.*, 1931, xxiv, 1645.

E. A. Peters. (1) Test of maximum tuning-fork hearing; (2) Case of otitic cerebellar abscess with meningitis—isolation of petrous bone—drainage anterior to lateral sinus—lumbar puncture—recovery. *Proc. R.S.M.*, 1931, xxiv, 1694, 1696.

S. Rowbotham. Pre-medication. *B.M.J.*, 1931, ii, 693.

R. E. Smith. Clinical description of epidemic Sonne development. *Lancet*, 1931, ii, 925.

F. B. Bull. Case of immediate torsion involving secondary treatment. *Dent. Rec.*, 1931, li, 533.

S. W. Charles. Full denture prosthesis. *Dent. Rec.*, 1931, li, 545.

F. N. Doubleday. Removal of teeth by hand pressure. *B. Dent. J.*, 1931, lii, 513.

Appointment

D. W. C. Northfield, M.B., B.S., F.R.C.S., Honorary Assistant Surgeon, Queen's Hospital for Children, Hackney.

Birth

PRINGLE.—On October 13th, 1931, at Kuala Lumpur, F.M.S., to Elsie (née Thorp-Monks), wife of Dr. L. D. Pringle, Malayan Medical Service—a son.

EDS. { J. S. B. / G. A. M. L.

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GUY'S HOSPITAL GAZETTE

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PASSIM

ONCE again Fortune, that ever fickle jade, has passed us lightly by and turned her smiling face upon her chosen few. From this you will gather that once more we have been unsuccessful in the Irish Sweepstake. In common with some two or three million others our counterfoil failed to come to hand at the psychological moment. For aught we know it is still revolving in the deepest and darkest recess of that great cylinder—this slip of paper on the fate of which, for the past few weeks, we had built castles in the air and founded our plans for the future independence that was to be ours.

All these fantasies have now been temporarily laid aside, and we return to our humdrum life trusting that Fate, in the guise of " reports and inquests," will sufficiently deplete our overdraft as to warrant another small investment in a similar financial venture at no distant date. Then once more, until the day of disillusionment arrives, we shall be planning the disposal of the fortune the chance of winning which we shall share with some three million other persons.

The only consolation we can find in the unhappy reluctance of the aforementioned counterfoil to see the light of day is the fact that approximately one-third of its original cost is to be devoted to the maintenance of a hospital. But here again, to use a colloquialism, there is " a fly in the ointment," for the hospitals to receive this benefaction are not of this country.

Although these sweepstakes receive world-wide support, there is no doubt that a large proportion of the grand total collected is derived from this country. It is a sad thought that in these days, when our voluntary hospitals are finding such difficulty in keeping their heads above water, that so much money should leave the country for the support of those elsewhere.

There are two interesting points in regard to the holding of similar sweepstakes in this country. The first concerns the legality of these enterprises. In this respect the law as it stands at present is made to look ridiculous, for, since the abolition of the speed limit, there has been no greater source for violation of the law by otherwise law-abiding citizens than that provided by the purchase of a sweepstake ticket. The second, and this depends on the alteration of the law, is the advisability or otherwise of the provision of sweepstakes for the maintenance of our charitable institutions. It is a very difficult and vexed question, and one in which we have no wish to be involved here.

Human nature being as it is, most of us are prepared to risk a small sum for the chance of winning a much larger one. It would seem therefore, that patronage of these sweepstakes is no mere passing vogue, and thus there is every reason to believe that they will continue to be of the same dimensions.

With this in mind, and when we realise that since the institution of these lotteries the Irish hospitals have benefitted to the extent of between two and three million pounds, we find ourselves with food for much thought.

CHRISTMAS is rapidly approaching, and we would remind readers that amongst the many festivities designed for the amusement of the patients and the Borough population, the Landon Out-Patient Tea is one of the most deserving. Sister Out-

Patients will be glad to receive any contributions towards this fund, and especially toys and dolls with which to decorate the Christmas tree.

AN old Guy's man, Dr. William Hofmeyr Craib, has recently been appointed Professor of Medicine at the University of the Witwatersrand, South Africa. Dr. Craib obtained the B.Ch. Camb. in 1924 and the M.B. in 1927. He held the appointment of Chief Clinical Assistant in the Neurological Department at Guy's.

ON Friday, December 4th, at 1 p.m., in the Anatomical Theatre, Dr. J. Fawcett will give a lecture on "Thomas Guy and his Times." We feel certain that this address will draw the large attendance that it deserves.

A MOST enjoyable Dental dance was held in the Wharncliffe Rooms on Friday, November 13th. This was attended by the large number of 345, and much credit is due to those concerned on the success of the function.

MESSRS. ASH & CO. have again prepared many attractive Christmas Cards, the proceeds from the sale of which will be devoted to the Hospital funds. These cards may be obtained in the Wills Library, the Counting House, the Matron's Office, or the Hospital Shop.

Higher or Normal Carbohydrate Diets in the Treatment of Diabetes

A Clinical Lecture delivered at Guy's Hospital by E. P. Poulton, Esq., M.D.

(*A rather more detailed account of this subject appears in a discussion in the Proceedings of the Royal Society of Medicine, who have kindly allowed the use of their Tables for the present lecture.*)

GENTLEMEN,—When insulin was first introduced there were several factors that influenced the kind of diet prescribed for patients. There was a scarcity of insulin, which meant that only the severe diabetics could be treated at all, and in these cases its use was to be economised by rigid dieting. Then, again, the value of fasting with the subsequent gradual additions of carbohydrate on the ladder principle had been recently substantiated. This treatment marked such an advance, and was so nearly successful in many cases that many physicians felt that if only a little insulin were added a gradual cure might be expected in the course of a few years, and this would apply particularly to children, since the pancreas would naturally increase in size as the child grew up. A third argument was that it would be much easier to get a correct balance between diet and insulin when both the carbohydrate and the insulin were kept low. This balance was of particular importance because it is considered that successful treatment depends upon the blood sugar being kept within normal limits throughout the 24 hours. Consequently the diets used, as far as their carbohydrate content was concerned, were very similar to those of the under-nutrition period, although care was taken to give enough carbohydrate to prevent a well-marked Rothera reaction from being present in the urine. It must be admitted that patients in general have done well with this treatment; but it cannot be said that any very striking permanent amelioration in the disease has been commonly met with, and in many children who have been most carefully treated at home, if the disease has not remained stationary, it has rather tended to progress. Curiously enough, it is the elderly patients who seem to have most readily regained carbohydrate tolerance. It was in the autumn of 1928 that the present writer was so impressed with the comparative failure of this treatment in the case of children that he decided to try much fuller carbohydrate diets, taking the point of view that the results might be better and it was most unlikely that they could be much worse. There was a particular reason for employing this treatment for the first patient, as she was a girl (McC., Group I), aged nine, suffering from quite mild diabetes; she had glands in the abdomen which a laparatomy two years previously had shown to be tuberculous, and there was a continual slight evening rise of temperature.

By the end of 1928, when this first patient was treated, other physicians had already been thinking along these lines. Chabanier (1924-25) was probably the first to advocate the use of higher carbohydrate diets; but his treatment was unusual. He set no particular store by reducing the blood sugar to within normal limits, and he gave his insulin by means of a series of " cures " in which the patient came up to the clinic twice daily for injections over a period of some weeks; then the insulin was omitted, and further courses were given when the patient relapsed after weeks or months, as the case might be. At the beginning of the treatment the carbohydrate varied in amount from 100 to 250 grams per day according to the case, and these amounts were later increased. Practically everyone is agreed that insulin should be given continuously, and Chabanier's unusual procedure in this respect may have led to the neglect of the higher carbohydrate feeding that he advocated. Sansum, Blatherwick and Bowden (1926) referred to the well-known fact that diabetes occurred among fat people, and that the blood sugar can be raised by giving a high fat diet just as it may be by giving a high carbohydrate diet, and advocated a high carbohydrate diet. Adlersberg and Porges (1926) also advocated the administration of high carbohydrate, moderate protein and little fat; they argued that with a high fat intake so much fat is stored in the liver that the latter organ is unable to deal with carbohydrate, and so the blood sugar rises to an abnormal extent after giving sugar, as in the ordinary sugar tolerance test. In this connection some striking figures were published by Sweeney (1927). He showed that with a subject on a carbohydrate diet the sugar tolerance curve after dextrose rose from 0.08 to 0.12 per cent. at its highest; on a protein diet from 0.062 to 0.16 per cent., whereas on a fat diet the values ranged from 0.065 to 0.19 per cent., and in starvation from 0.08 to 0.20 per cent. In this country J. A. Nixon has since the introduction of insulin used diets containing over 100 grm. of carbohydrate.

The nature of the problem may best be considered by means of a concrete instance. What possible ways are there of constructing a diet to yield 2,400 calories? The protein content of the diet, unless it is excessive, will at most account for 400 calories; there are still 2,000 to divide up between the carbohydrate and fat. According as the ratio of these two changes from 1 to 2, to 4 to 1, the amounts of carbohydrate allowed per day will vary between 90 and 320 and the fat between 180 and 80 (see Table). Which of these formulas is the one most commonly adopted among healthy people of this country? The present writer has added a few measurements of his own diet and of that of a healthy girl who was 10 years old in September, 1930. The results are variable, because no particular selection of food was made. It is very easy, without realising it, to eat a large amount of fat in the form of plum-pudding, mince-meat, or suet pancakes, as was the case with E. P. P. on February 1 and 21, 1931. The diet on February 7 might, on the other hand, be regarded as a little bit on the low side. Some figures from Cathcart, Murray and Shanks' paper for various classes of population at St. Andrew's have also been added. It would not be unreasonable to consider that a diet containing 250 grm. of carbohydrate or over is a *normal* carbohydrate diet for adults in our present civilisation, and a diet of 200 grm. may similarly

			C. to F. ratio.	C. grm.	F. grm.	P. grm.	Cals.
Standard diets made up of varying proportions of carbohydrate and fat			1 to 2	90	180	87	2,400
			1 to 1.5	110	165	99	2,400
			1 to 1	150	150	95	2,400
			2 to 1	230	115	95	2,400
			3 to 1	270	90	111	2,400
			4 to 1	320	80	84	2,400
Case.	Date.	Wt. lb.					
E.P.P.	29. 5.29	..	2.8 to 1	402	111	91	3,050
	1.12.29	163 ..		287			
	1. 2.31	168 ..	3 to 1	405	132	76	3,200
	7. 2.31	168 ..	2.4 to 1	254	105	107	2,450
	21. 2.31	168 ..	2.5 to 1	376	148	83	3,250
J.P.	1.12.29	54 ..	..	185	..	..	..
	1. 2.31	57 ..	3.2 to 1	220	69	43	1,720
	7. 2.31	..	3.8 to 1	201	53	53	1,530
Observations by Cathcart, Murray and Shanks.							
Professional Class ..	..	..	3 to 1	448	151	100	3,640
Shopkeepers ..	..	..	3.4 to 1	437	130	90	3,350
Unskilled Workers ..	..	..	4 to 1	388	97	73	2,780

GROUP I.

(1) Case (2) Sex (3) Age	(1) Diabetic History (2) Low C. (3) High C. (months)	Date.	Wt. lb.	Pred. Wt. Prev. Wt.	Diet C.	P.	F.	Cals.	Insulin units per diem	C. — Ins.	Symptoms, etc., before treatment.
(1) Le.	(1) 13	3.27	123	137-204	100	104	162	2,340	24	4.2	Thirst, cramps, blurred
(2) M.	(2) 36	3.30	138		70				36	2.0	vision, 230 mg. Some
(3) 53	(3) 11	2.31	145		**100**				44	2.3	C.
Lew.	228	5.25	151	139-208	128	96	131	2,140	20	6.4	Mild case; sciatica,
M.	4	9.25	148	168	128	96	131	2,140	16	8.0	fibrositis, sugar toler-
49	57	1.26	146		**171**	106	141	2,450	16	10.7	ance curve, 135 mg.
		3.26	149		**194**	119	137	2,560	18	10.8	50 g. dextrose 45′ 270;
		12.26	153		**154**	113	137	2,370	18	8.5	903′ 35; 180′ 180.
		later			**174**	115	157	2,640	18	9.6	
		12.29	149		190	98	140	2,480	18	10.6	
		6.30	150		**211**				22	9.6	
Edw.	12	7.26	140	115-172	62	81	124	1,750	50	1.2	Thirst, 280 mg. Ordi-
M.	52	11.30		170	120				40	3.0	nary diet.
39	2	1.31	161		**240**	92	114		36	6.7	
M. Sm.	24	7.23	141	99-161	30	94	145	1,860	30	1.0	Thirst, phthisis, 135 mg.
M.	89	2.29	150		84				24	3.5	Strict diet.
35	12	12.30	140		100				20	5.0	
		1.31			**145**				30	4.8	
Ett.	96	7.23	110	103-154	24	78	157	1,880	20	1.2	Thirst, 140 mg. Strict
M.	70	5.29	124		48				30	1.6	diet.
33	16	5.30	126		**120**				50	2.4	
		3.31	123		139	83	149	2,300	42	3.3	
Bai.	12	1.28	169	120-180	57				44	1.3	Thirst, 250 mg. Strict
M.	13	11.28	193		81				38	2.1	diet.
32	26	10.29	200		122				80	1.5	
		3.31	190		115	108	141	2,230	66	1.7	
Woo	8	5.28	94	99-146	35	68	116	1,500	42	0.8	Thirst, irritation, 415
F.	13	11.29	124		71	81	115	1,700	52	2.2	mg. Some C.
32	14	1.31	130		**146**	103	109	2,040	58	2.5	
Osb.	66	6.23	113	102-150	24	77	156	1,860	20	1.2	Thirst, following jaun-
F.	69	9.28	133		50				40	1.3	dice, vulval irritation,
31	19	10.30	143		105				65	1.6	370 mg. after sugar.
San.	1	1.26	125	110-165	81	88	132	1,920	16	5.1	Thirst, 210 mg. Strict
M.	45	10.29	123		58	79	149	1,930	32	1.8	diet.
30	15	1.31	140		**110**				64	1.7	
Cr.	1	9.23	124	118-175	33	77	133	1,690	27	1.2	210 mg. Strict diet.
F.	65	6.28	123		100				20	5.0	2.31 some sugar, but
25	24	10.29	116		165				16	10.0	low threshold.
		2.31	117		248				24	10.0	
Eas.	6	10.25	67	60-73	92	91	151	2,150	16	5.8	Thirst, 290 mg. Ordi-
M.	54	1.30	120	94-141	112	65	91	1,570	64	1.8	nary diet.
13	10	2.31	131		192	102	112	2,250	53	3.6	
Lan.	1	11.24	63	70-105	60				16	3.7	Thirst, 400 mg. Ordi-
M.	62	1.30	89	78-117	110				72	1.5	nary diet.
12	13	2.31	128	115-172	**160**	95	112	2,090	104	1.5	
McM.	9	5.24	60	52-79	29	43	99	1,210	28	1.0	Thirst following vac-
F.	54	9.28	99	86-115	58	60	110	1,510	68	0.9	cination.
9	27	7.29	111	95-140	134	60	118	1,890	108	1.2	
		1.30	113	99-146	304	86	132	2,830	124	2.5	
		2.31			194	69	77	1,760	133	1.5	
McC.	3	4.28			60	75	84	1,330	12	5.0	Thirst, wasting, tuber-
F.	6	8.28			60	75	84	1,330	2	3.0	culous glands 10.28—
9	27	10.28	53	63-93	53	86	73	1,250	0		9.10 a.m., 115 mg.,
		11.28	59		137	56	127	1,970	24		6.15 p.m., 165 mg.
		5.29	63	67-99	146	56	127	2,000	23	6.3	Sugar tolerance curve
		10.29	65	67-99	**162**	66	121	2,060	28	5.9	after 30 g. dextrose
		5.30			**224**	66	121	2,320	36	6.2	115 mg.; 37′ 155;
		2.31	74	76-112	241	80	126	2,490	42	5.8	57′ 220; 92′ 260; 180′ 290
R. K.	1	4.27	38	35-52	39	43	99	1,260	14	2.8	Thirst, nocturnal enu-
M.	19	6.27	41		51	44	96	1,290	10	5.1	resis, 370 mg Ordi-
4	26	11.27	46	35-52	**59**	35	125	1,550	10	5.9	nary diet. 6.30 tonsil-
		2.28	46		**55**	43	133	1,630	17	3.2	lectomy.
		6.28	48	38-58	**55**	43	133	1,630	21	2.6	
		11.28	48	38-58	70	65	103	1,510	22	3.1	
		12.29	53	49-72	**123**	70	124	1,950	34	3.6	
		2.30	56		**143**	72	126	2,050	38	3.8	
		6.30	57	50-74	**143**	72	126	2,050	43	3.3	
		1 31	56	52-79	**196**	75	88	1,925	35	5.6	

GROUP II.

Case. Sex. Age.	Diabetic history Insulin (months)	Date	Wt. lb.	Pred. Wt. Prev. Wt.	C.	P.	F.	Cals.	Insulin units per diem	C / Ins.	Symptoms, etc., before treatment.
Hol.	15	4.29	115	92-136	205	58	80	1,820	40	5.1	Thirst, neuritis, 220 mg.
F., 63	21	1.31	118	133	213	63	109	2,140	38	5.6	Low C.
Fin.	4	4.30	147	134-200	315	102	143	3,040	66	4.8	Thirst, 330 mgm. Some
M., 60	9	1.31	170	165	315	102	143	3,040	40	7.9	C. in diet.
Sod.	5	6.30	136	110-165	215	90	92	2,110	48	4.5	Thirst, angina, 425 mg.
M., 51	9	3.31	143	150	225	92	93	2,170	22	10.0	after sugar.
Str.	6	7.29	145	97-146	179	97	134	2,370	64	2.8	Thirst, 290 mg.
M., 50	19	1.31	156		179	97	134	2,370	48	3.7	Low C.
Jon.	4	4.30	129	102-150	122	53	68	1,350	88	1.4	Thirst, 225 mg. Low C.
F., 50	11	3.31	139		136	57	71	1,450	88	1.5	Exoph. goitre 8 years.
Sme.	3	5.29	119	90-133	191	80	112	2,150	31	6.2	Thirst irritation.
F., 45	20	1.31	131		175	69	114	2,060	25	7.0	330 mg. Ord. diet.
Cla.	26	4.30	119	111-164	234	114	150	2,820	50	4.7	Thirst irritation.
F., 45	10	2.31	124		207	102	126	2,440	28	7.4	230 mg. Low C.
Haw.	2	10.30	108	109-160	250	103	120	2,560	44	5.7	Thirst, 260 mg.
F., 43	5	3.31	126	140	235	94	95	2,230	26	9.0	Low C. Diplopia.
Fors.	16	2.30	88	97-143	177	94	149	2,490	60	3.0	Thirst, irritation.
F., 27	13	3.31	133		142	83	124	2,070	46	3.1	350 mg.
Jam.	3	7.30	139	115-172	260	105	125	2,660	84	3.1	Thirst, 285 mg.
M., 17	7	2.31	149		260	105	125	2,660	78	3.3	Low C.
Gol.	2	12.29	49	43-64	188	63	73	1,740	36	5.2	Thirst, 235 mg.
F., 6	14	3.30	64		Some	reduction	of fat		30	6.3	90 g. C. in diet.
						advised.					
		5.30	61	49-71					22	8.6	
		7.30							35	5.4	
		9.30							37	5.1	
		11.30	66	55-81					40	4.7	
Ric.	1	11.28	49	51-76	130	62	121	1,910	36	3.6	Thirst, 310 mg.
M., 6	26	2.29			130	62	121	1,910	38	3.4	Some C. No sugar in
		5.29			130	62	121	1,910	18	7.2	diet.
		8.29			130	62	121	1,910	22	5.9	
		11.29	53	54-81	130	62	121	1,910	26	50	
		4.30			135	68	136	2,110	30	4.5	
		7.30			135	68	136	2,110	30	4.5	
		10.30			135	68	136	2,110	26	5.2	
		1.31	62		135	68	136	2,110	26	5.2	

be considered as normal for the middle of childhood; children are accustomed to take a larger proportion of carbohydrate in their diet. When the carbohydrate falls below these figures, but above 100, the term *higher* carbohydrate diet may be used, in comparison with the standards accepted at the present day.

The evidence in favour of allowing a higher or a normal amount of carbohydrate in a diabetic diet is presented in the form of a study of 27 patients, arranged in Groups I and II in descending order of age. In Group I 15 patients, including five children, have been observed during a period of low carbohydrate feeding, and subsequently when the carbohydrate has been increased. In Group II 12 patients, including two children, have been treated from the beginning with higher or normal carbohydrate diets. Group III has been added for comparison, and consists of 24 patients, most of whom replied to a questionnaire sent out in November, 1925, some two years after insulin treatment was begun, while the remainder began their insulin treatment later. This is not a large number of cases, but a selection has been made of those patients who, there is reason to believe, have conscientiously followed the diet prescribed and have regularly tested the urine for sugar. Hospital patients have not been included. Brief clinical notes, with blood-sugar before treatment and the length of the diabetic history, have been added in all the groups, so that some idea of the severity of the case may be obtained. No mention has been made of fatigue as a symptom, because it was always present to some degree before treatment, even in the mildest cases, and wasting is only specially noted where figures for the predicted weight are absent. The normal range of predicted weight was determined from Ainley Walker's figures correlating the stem length with the body-weight of normal individuals. The range represents four times the standard deviation from his formula for males and 3.2 times the standard deviation for females, and so it should include 95 per cent. of all normal observations

for males and 87 per cent. for females. This is not an ideal method of comparison, because the range is so big, presumably because the lengths of arms and legs and the size of the head are not taken into account. Ainley Walker, of course, was not concerned with this aspect of the question; his figures were obtained from children and young adults, mainly undergraduates, and a certain extra allowance of fat may well be admissible in the middle-aged, increasing the predicted weight. Hence, any patient whose weight appears near the bottom of the normal range is to be looked upon as decidedly wasted, and in most cases there is a rise of weight at the end of the period. Comparatively few of the cases were above the maximum, a figure which would indicate obesity. Dreyer introduced the measurement of the circumference of the chest as an additional help, but this fails both for fat people and for thin people, and so has not been used.

The cases in Group III were treated on the principle of a small carbohydrate and a relative large fat ration; 5 and 10 per cent. vegetables, including Jerusalem artichokes, have always been allowed in large quantity and 1 oz. has been counted as affording 1 grm. of carbohydrate, while the protein content has been neglected. The patients were told only to reduce their insulin if they noticed symptoms of hypoglycæmia; the insulin dosage had been originally adjusted so as to be short of the amount that produced hypoglycæmic symptoms while the urine remained free of sugar, and the blood-sugar was normal except where stated in the tables. This dosage was the insulin requirement at the beginning of treatment (column 11), and it is compared with the value at the end of the period (column 13). In one case too little insulin was being taken, and the prefix > has been added. In Groups I and II the arrangement is different. In each case the first date and body weight correspond to the beginning of insulin treatment, and the first diet and insulin dosage, as in Group III, are the amounts ordered for the patient on returning home after the preliminary investigations were completed. For the later dates all the figures in line correspond, and the diet mentioned had been taken over a prolonged period, very often since the time of the previous examination noted in the table; this latter fact is indicated by the C. figure being in heavy type. The number of months of low or higher carbohydrate feeding are given in column 2 (Low C. and High C. in Group I, Insulin (months) in Group II). A rough measure of the severity of a case of diabetes may be obtained by dividing the carbohydrate intake in grams by the number of units of insulin required when the patient's blood-sugar is normal (C./Ins.), though this plan is not justified when low and high carbohydrate diets are compared. Still this method may be used to compare individuals when the diet is about the same, or to estimate change in the severity of the disease, supposing that intestinal absorption of carbohydrate is fairly complete. In four children (Gol., Ric., McC. and R. K.), where the threshold was normal an accurate estimate of this ratio has been made over a period of years because the urine has always been tested for sugar six times a day. In the charts it was seen that good periods were interspersed with bad periods when, owing to some infection, sugar appeared in the urine and the insulin had to be increased. The ratios at the good periods, when there was no sugar, are used for comparison to determine the progress of the case from month to month.

In assessing the results of treatment, the adult patients will be dealt with first and the children separately, later on.

Adults.—To determine the effect of a low carbohydrate diet on adult patients, the cases in Groups I and III, omitting Lew., may be added together, because these patients all began their insulin treatment on this same type of diet. The total number was 31. Of these, 17 (55 per cent.) required less insulin at the end of the stated period, which in the case of Group I extended up to seven years and more, and in Group III varied between 11 months and $3\frac{1}{3}$ years (column 12). In 10 (32 per cent.) the insulin requirement remained about the same as at the beginning, and in four it had increased. These cases have also been divided into two series, according as there was, or was not, wasting at the beginning of treatment, and the results are not so favourable in the wasted patients. Age, as might be expected, had an influence. Of 18 patients over 35, in 12 (67 per cent.) the insulin requirement was less when the cases were reviewed; four remained stationary, and in two, more insulin was required. Of 13 under 35 and over 19 years, only five (38 per cent.) required less insulin; six were stationary, and two required more insulin than before; so the older patients did rather better.

In Group II there were eight adult patients over 35 who began their insulin treatment with a high carbohydrate diet, and of these five showed improvement, as indicated by the carbohydrate-insulin ratio, while three remained stationary. This is practically the same proportion as with the low carbohydrate diet. Two patients in Group II, aged 27 and 17, both remained stationary. It might be argued that it is wrong to compare the patients in Group II who had been taking insulin on the average for only a year with patients in

Group I, whose average length of treatment on the low carbohydrate diet was over four years, or with those of Group III, who had averaged two years' treatment. However, 24 of these Groups I and III patients had also been examined on the average about six months after beginning treatment, and in 17 patients the improvement or deterioration finally observed was also evident after this shorter period of time. One patient (J. Rob.) who did well shortly afterwards required more insulin later on when he had grown very much heavier. The other six cases were either stationary to begin with and improved later, or *vice versa*. Anyhow, in most cases it would appear at quite an early date whether the insulin requirement will be increased or diminished as the patient grows older. The patients in Group II have taken their carbohydrate in the form of bread, oatmeal, potatoes, rice or sago, vegetables, fruit and milk; but in three patients who have done

GROUP III.

Case	Sex	Age	Weight lb. before	Weight lb. after	Predicted weight	Diet C.	Diet P.	Diet F.	Cals.	Insulin units per diem at first	Insulin period months	Insulin units per diem at end	History months	Symptoms before treatment
Hug.	F.	63	143	143	82-121	51	74	124	1,670	35	30	25	132	Neuritis, 240 mg. strict diet.
Dob.	F.	60	98	134	..	27	64	133	1,612	30	27	30	60	Wasting, 280 mg. strict diet.
Pap.	F.	57	94	116	..	38	67	194	2,240	20	30	20	96	Wasting, 300 mg. strict diet.
Har.	M.	56	181		103-154	68	86	135	1,890	26	18	24	30	Sepsis, thirst, ht. blk., 252 mg. Some C.
Wri.	M.	54	121		103-154	59	72	145	1890	50	22	35	36	Thirst, 350 mg.
T.Th.	M.	50	107	109	103-154	32	67	117	1,500	36	12	14	72	Thirst, 295 mg.
She.	F.	47	88	147	118-175	45	100	145	1,940	46	18	70	48	Thirst, 275 mg. strict diet.
Pro.	F.	46	133	129	104-140	54	68	89	1,330	28	26	12	2	Thirst, 240 mg. ord. diet. Before 154 lb.
Gow.	F.	45	90	112	99-146	45	80	167	2,060	32	24	24	3	Wasting, 250 mg. strict diet.
Arn.	M.	42	103	135	101-150	38	111	261	3,040	40	30	33	39	Thirst, 310 mg. Some C.
Sim.	M.	42	147	147	122-183	60	95	163	2,150	40	29	24	3	Polyuria, gangrene, 230 mg. strict diet.
Puc.	M.	40	128		110-165	60	72	148	1,920	30	24	27	10	Thirst, 255 mg. strict diet.
A.Ro.	M.	37	138	138	117-175	40	89	172	2,130	16	16	9	12	Thirst, irrit. on penis, 205 mg. ord. diet.
J.Ro.	M.	36	101	126	108-162	13	104	121	1,600	25	28	>30	10	Thirst, 145 mg. strict diet.
Kir.	F.	35	98	119	99-146	44	98	145	1,930	54	25	24	36	Thirst, 400 mg.
E.To.	F.	34	143	150	95-140	77	72	102	1,560	20	26	18	42	225 mg. 2 hrs. after 50 g. dextrose.
Max.	M.	33	143		122-183	40	80	151	1,900	10	24	16	2	Thirst, 160 mg. strict diet.
Rob.	F.	31	120	119	92-136	28	80	165	1,980	36	20	20	4	Thirst, vulval irrit., 195 mg. strict diet.
Cro.	F.	31	120	123	124-183	85	80	115	1,740	24	35	24	7	Thirst, visual defect, 295 mg. diab. diet.
Mat.	M.	28	162	161	131-196	24	63	180	2,030	30	11	35	3	Thirst, 200 mg. strict diet.
Dow.	F.	24	93	123	99-146	68	85	183	2,330	40	30	40	6	Thirst, visual defect, 275 mg. diab. diet.
Buf.	F.	19	75	106	74-109	48	77	137	1,790	36	23	40	18	Coma, 450 mg.
Den.	M.	13	83	125	74-111	88	102	137	2,050	24	40	58	10	Thirst, later pred. wt. 103-154.
How.	F.	12	88	114	78-115	54	84	155	2,010	36	32	30	1	Thirst, sclerodermia, later pred. wt.99-146

The following notes refer to modifications in the diet by the end of the period, etc. :—

She.—Some increase of diet. Reactions at high blood-sugar level. Case described by Poulton and Payne.

Pro.—Some bread extra twice a day.

Arn.—Fat reduced soon after beginning insulin.

Puc.—Not so much C. at first.

A.Ro.—C. 102 grm.

Dow.—A more liberal diet, 64 months later, 15 units, 53 grm. C. wt. 115 lb.

How. C. 70. A year later 40 units.

extremely well (Fin., Sod., Haw.) actual sugar was taken in the form of marmalade or Horlick's malted milk. It might also be a good plan to give lævulose as a sweetening agent, as suggested originally by Hale White and F. Gowland Hopkins. One patient (Sod.) complained of shortness of breath and cardiac pain with exercise before insulin treatment; but these symptoms disappeared, though just recently there has been a return, when he had a "cold on the chest."

The comparison between a low and a high carbohydrate diet in the same case is seen in Group 1. It is a striking fact that the carbohydrate-to-insulin ratio is increased with change of diet, indicating that a given quantity of insulin becomes capable of dealing with more carbohydrate when the fuller diet is employed. Of the 10 adult patients an increase in the ratio was found in seven. In one (Bai.) the ratio fell, and in two (Le. and San.) it remained about the same. Le. began his treatment with 100 grm. C., but this was reduced and then again increased. The behaviour of this ratio is well seen in the very mild case (Lew.), a medical man in whom glycosuria was discovered 19 years previously. He was on a relatively high carbohydrate diet all through the treatment; but the ratio is on the average slightly less when the carbohydrate of the diet is lower; but in no case is the value at all low. This patient, who showed a definite diabetic type of blood-sugar response to ingestion of glucose in 1925 (see figures in table) gave the following figures in June, 1930: 95 mg.; 50 g. glucose; 33′ 180; 60′ 190; 90′ 180; 120′ 120; 180′ 65. The insulin has since been discontinued and the same high carbohydrate diet is being taken at present, at first without sugar, and now with sugar. A similar response to 50 g. glucose has been obtained in April, 1931. Though a very mild case he felt much better for his insulin treatment, and one symptom that he noticed disappear was a feeling of giddiness on getting up quickly. The next case (Edw.) also shows a wonderful improvement in the course of five years, with a ratio rising from 1.2 to 6.7. He is now taking sugar in the form of marmalade. Cre. is another mild case with high ratio now on a diet of 248 grm. C., including some marmalade. Her sugar tolerance curve in June, 1929, was 180 mg.; 50 g. glucose; 40′ 195; 65′ 270; 92′ 290; 180′ 230. In four of these patients there are sufficient data to estimate the progress during the period of the high C. feeding. Ett. has shown some and Bai. a very slight improvement, and two (Lew. and Cre.) have remained stationary. It has been noted that the sugar tolerance curve of Lew. had shown great improvement; but, of course, this may have occurred quite early in the treatment.

Children.—Of the seven children who began with the low carbohydrate diet (Groups I and III), two of these (Eas., Lan.) remained stationary at first; but later the insulin requirement was much increased. In the remaining five the original insulin dosage had to be reduced about six months after beginning treatment owing to the appearance of reactions. For McM. the reduction was from 28 to 12 units; for McC. from 12 to 2; for R. K. from 14 to 10; for Den. from 24 to 17; for How. from 36 to 12. In the case of McC. the period was too short to determine whether the great improvement would have been maintained. Two cases (McM. and Den.) showed a definite deterioration at the end of the low C. period, requiring more insulin than at the beginning; while in R. K. and How. the insulin requirement was about the same. This is a contrast to the adult patients in whom any early improvement was usually maintained. To summarise, of six children the final result was deterioration in four, while two remained stationary.

Of the two cases treated from the beginning with high carbohydrate (Gol. and Ric.) the former has remained about the same with a tendency to an increase in insulin requirement, the last C. to insulin ratio being 4.7 and the first one 5.2 (in July, 1931, it was 6.3), while Ric. has shown a definite improvement, although the insulin requirement at present is higher than it was six months after the treatment began. From the diabetic point of view he lives under the most perfect conditions on a farm, away from infection and taking as much exercise as possible.

The effect on the C.-to-insulin ratio of the change to the high carbohydrate diet can be seen in the five children of Group I. In one of them (Lan.), who now is practically grown up, the ratio has remained the same, and this is also the case with McC. Eas., who is also grown up, showed a great improvement on increasing the carbohydrate in the diet from 112 to 192. In R. K. there has been, on the whole, a slight increase in the ratio with increase of carbohyrdate, if the improvement at the beginning of treatment is discounted; but the great improvement during the last six months may quite well be partly due to the tonsillectomy carried out in the summer. Incidentally, the change from 70 to 123 grm. of carbohydrate made a noticeable difference in the boy's behaviour; he became brighter and more active. The girl McM. is an advanced case, and the insulin requirement had increased to 68 units in three doses each day by 1928, when the change of diet was made. At this time there was sugar

in most specimens passed during the day, and there was a strongly-marked Rothera reaction. The increase from 58 to 134 grm. C. was successful to begin with; the tests were free on an insulin dosage of 140. Later the insulin settled down to 108. Since then the diet has been twice changed. The Rothera reaction is usually negative; but there is still sugar in many specimens of urine, and the last blood-sugar was 210 mg. at 2 p.m. This has been from the beginning a disappointing case, because the circumstances would have been considered ideal; she lives in the country, bicycles to school, and great care has been taken over the weighing and preparation of the food, and the urine testing, etc., and yet the disease on the low carbohydrate diet had in four and a half years become severe. With change of diet there certainly is some increase in the C.-to-insulin ratio; and some account may be taken of this, because, though some hyperglycæmia and glycosuria are present now in 1931, they are much the same in amount as in 1928 on the low C. diet when the ratio was 0.9.

From the foregoing evidence, extending in some cases for more than two years, it appears that in adults the course of the disease is no more unfavourable with the higher or normal than with the low carbohydrate diets; in children there may even be some improvement, as shown by Ric. and R. K. But it is necessary to point out that these favourable results, so far as they go, have followed on a careful balancing of the carbohydrate and insulin so as to keep the blood-sugar normal throughout the 24 hours. Curiously enough, this adjustment has been made as successfully with the higher as with the lower carbohydrate diets and in some cases, at any rate, this success may be due to the time at which the insulin is taken. With these higher carbohydrate diets the injection should be timed as long a time before the meal as can be tolerated by the patient, and some patients have succeeded in taking their insulin one hour, one and a quarter or even one and a half hours beforehand. It may be that when the body has so big a content of carbohydrate much of the insulin is occupied in keeping the extra glycogen back in the liver and, in consequence, does not so readily produce a hypoglycæmia. The following figures were obtained for the blood-sugar of Bai. (Group I) just before the administration of 40 units of insulin and at quarter-hour intervals afterwards: 135 mg.; 125, 105, 100, 75, 62, mild reaction. They show a slow, steady fall. Another instructive series of observations has been made on the blood of Puc. (Group III). The carbohydrate in his diet has recently been increased to 190 grm. and the insulin to 54 units. The blood-sugar at 6.30 a.m. was 140 mg. just prior to injecting 28 units. The subsequent values were 22½′, 165—an actual rise, then a steady fall: 44′, 135; 64′, 110; 95′, 65, when breakfast was given. But there are some patients, notably Cre., and some children, who find it impossible to take their insulin more than half an hour, or possibly three-quarters of an hour, before the meal without noticing a reaction while they are eating. The present writer does not advocate these higher carbohydrate diets if they necessitate the patient taking three doses of insulin a day. Two patients (R. K. and McM.) are taking their insulin in three doses, but it was found necessary to add the third dose before the carbohydrate was increased. It is also not claimed that every case of diabetes can be given over 200 grm. of carbohydrate a day. In some severe cases a correct balancing of insulin and carbohydrate may be impossible, and it would not be reasonable to expect patients to inject much more than 100 units a day, even though insulin of quadruple strength is now available; for most patients the cost would be too great. But with these provisos insulin patients should be allowed reasonable amounts of carbohydrate when they will be more likely to keep strictly to their diet. The difficulty in the past has been that patients in course of time have tended to increase the amount of carbohydrate without proportionately increasing the insulin dosage and some have died in consequence. Nearly all patients are much happier with the change, though when they have been on a low carbohydrate diet for some time they often do not wish to make a big increase. There are certain diseases such as phthisis, arteriosclerosis, angina pectoris, heart failure and renal insufficiency, in which higher carbohydrate diets are of particular value.

If this practice is generally adopted it is clear that some modification will be desirable in the diet tables drawn up specially for diabetics. Apart from regulating the amount of carbohydrate, the most important requirement of dieting is to keep the total calorie value within reasonable limits so as to prevent the body weight from becoming too much. An allowance of ½ gram of protein per lb. of body weight is very commonly made in non-complicated cases, but there does not seem to be any reason for making a hard and fast rule, and there would seem to be no objection to giving up to 100 or even 110 grams, the amounts shown in Table I. Hence diet tables should be arranged, so as to allow both the amount of carbohydrates and the total calorie value to be rapidly determined; the exact amount of protein may be regarded as of secondary importance.

The principles of the 5-gram ration scheme for carbohydrates originally introduced by O. Leyton and of R. D. Lawrence's line ration scheme have been adopted, but a 20-gram ration of carbohydrate is advocated, and the protein and fat-containing foods, which form the red portion of Lawrence's lines, have been arranged into 10-gram fat rations without troubling to make the protein up to any definite quantity. The size of the ration has been chosen to provide a reasonable helping at each meal, with a minimum of weighing and calculation.

The Relationship of the Dental Board to the Dental Profession

An Address delivered by Mr. Norman King, Registrar of the Dental Board of the United Kingdom, to Dental Students on Thursday, October 29th, 1931

THERE appears to be a good deal of misconception in regard to the position of the Board towards the profession, and it may, therefore, be helpful if the facts are set forth, in order that there may be a clear understanding on the subject.

The preamble to the Medical Act, 1858, laid it down that it was expedient that persons needing medical aid should be able to distinguish qualified from unqualified practitioners.

The preamble to the Dentists Act, 1878, however, prescribed that it was expedient that provision should be made for the registration of persons specially qualified to practise as dentists in the United Kingdom. Section 3 of the latter Act, which was repealed by the Dentists Act, 1921, laid down :—

" 3. *Penalty on unregistered persons using title of ' dentist,' etc.*—A person shall not be entitled to take or use the name or title of ' dentist ' (either alone or in combination with any other word or words), or of ' dental practitioner,' or any name, title, addition, or description implying that he is registered under this Act or that he is a person specially qualified to practise dentistry, unless he is registered under this Act.

" Any person who, not being registered under this Act, takes or uses any such name, title, addition, or description as aforesaid shall be liable, on summary conviction, to a fine not exceeding twenty pounds ; provided that nothing in this section shall apply to legally qualified medical practitioners."

It will be observed that the practice of dentistry by unregistered persons was not prohibited, but they were precluded from using misleading titles, and for many years they were considerably hampered in carrying on the work which they were legally entitled to do. However, by a decision of the High Court in 1910 it was laid down that, although an unregistered person might not use a title such as " Dentist " or " Dental Practitioner," implying that he was registered, he was not precluded from describing the premises in which he carried on his practice as a " Dental Surgery." It was clear that the intention of the legislature was that in regard to Medicine the public should be able to distinguish between legally qualified and unqualified persons, and that in regard to dentistry there should be some facilities for ascertaining who were specially qualified to practice dentistry. The decision of the High Court had evidently nullified the intentions of the Dentists Act, 1878, and, in consequence of representations by the General Medical Council and the British Dental Association, the Lord President of the Privy Council set up in 1918 a Departmental Committee under the chairmanship of the Rt. Hon. Francis Acland (now the Rt. Hon. Sir Francis Acland, Bt., and Chairman of the Dental Board), to inquire into the extent and gravity of the evils of dental practice by persons not qualified under the Dentists Act. As a result of the report by this Committee and by Agreement between the representatives of those principally concerned, namely, the British Dental Association representing registered dentists, the Incorporated Dental Society representing unregistered persons practising dentistry, and representatives of bodies corporate carrying on the business of dentistry, the Dentists Act, 1921, was eventually passed into law.

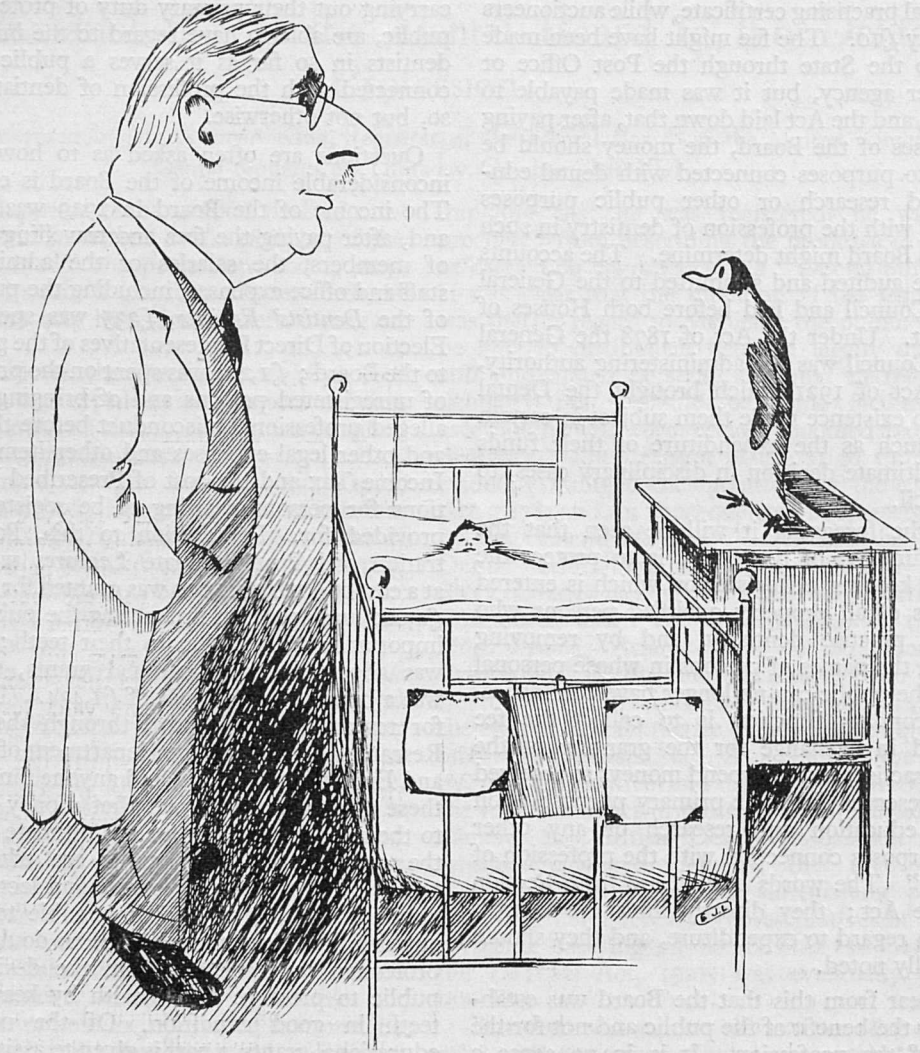
This Act was a great advance on the Act of 1878, and prescribed that no unregistered person should practise dentistry. It provided for the registration in certain circumstances of persons who had been earning their livelihood as dentists or dental mechanics for a specified period, and for the carrying on of dentistry by bodies corporate, provided they complied with certain requirements. As a return for the right to practise dentistry given to registered persons it was laid down that a fee should be charged in respect of the retention on the Register of the name of any person registered

after the commencement of the Act in any year subsequent to the year in which the person was first registered. This fee is akin to the payment which has to be made annually by Solicitors and Auctioneers, and the Act laid down that it was not to exceed £5. At the moment it is £4, and in passing it may be mentioned that solicitors in London have to pay £9 and in the country £6 for their annual practising certificate, while auctioneers have to pay £10. The fee might have been made payable to the State through the Post Office or some other agency, but it was made payable to the Board, and the Act laid down that, after paying the expenses of the Board, the money should be allocated to purposes connected with dental education and research or other public purposes connected with the profession of dentistry in such was as the Board might determine. The accounts have to be audited and submitted to the General Medical Council and laid before both Houses of Parliament. Under the Act of 1878 the General Medical Council was the administering authority, but the Act of 1921 which brought the Dental Board into existence made them subject in certain matters, such as the expenditure of their funds and the ultimate decision in disciplinary cases, to the Council.

From the foregoing it will be seen that the primary function of the Board is to protect the public by keeping a Register on which is entered the names of all properly qualified persons who desire to practise dentistry, and by removing therefrom the names of persons in whose personal conduct the public can no longer have confidence. Their secondary function is to collect the fee prescribed in exchange for the granting of the right to practise, and to expend moneys so received and not reserved for their primary purpose upon "dental education and research or any other public purposes connection with the profession of dentistry." The words quoted are from Section 10 of the Act; they directly limit the Board's powers in regard to expenditure, and they should be carefully noted.

It is clear from this that the Board was established for the benefit of the public and not for the benefit of the profession. It is in no sense a professional protection society, and dentists who desire to combine to further their own interests must become members of some society of their own for that purpose, such as the British Dental Association, the Incorporated Dental Society or the P.D.S.A. The Board are not concerned with the fees which dentists may charge or with the remuneration which they may receive. The only benefit which dentists are entitled to expect in return for the payment of their annual fee is the right to practise dentistry, and the protection which the Board can afford to them in this respect by instituting proceedings against unregistered persons for infringement of the Act. Had the annual fee been payable to the Government, as it easily might have been, dentists would have had little, if any, say in regard to its expenditure, but, as it is payable to the Board, the Board, while carrying out their primary duty of protecting the public, are able to have regard to the interests of dentists in so far as it serves a public purpose connected with the profession of dentistry to do so, but not otherwise.

Questions are often asked as to how the not inconsiderable income of the Board is expended. The income of the Board in 1929 was £43,000, and, after paying the fees and travelling expenses of members, the salaries of the administrative staff and office expenses, including the publication of the *Dentists' Register*, £335 was spent on an Election of Direct Representatives of the profession to the Board; £1,224 was spent on the prosecution of unregistered persons and of bringing cases of alleged professional misconduct before the Board, and other legal expenses and other items such as Income Tax and the cost of Prescribed Examinations for persons desiring to be registered were provided for. In addition to this, Post-Registration and Post-Graduate Lectures were given at a cost of £718; £5,000 was granted for research; £4,000 was spent on instructing the public in the importance of attention to their teeth; £21,000 was allocated for educational grants, and there was a balance for the year of £1,434. The grants for research are expended through the Medical Research Council and the Department of Scientific and Industrial Research, and anyone familiar with these two bodies is aware that money entrusted to them is wisely spent for the ultimate benefit of the community. The public are educated by means of films, posters, leaflets and lectures, and, although it is, of course, impossible to point to any definite result, there can be no doubt that the profession must benefit from the desire of the public to preserve their health by keeping their teeth in good condition. Of the money for educational grants, a part is given to assist students educationally well qualified but not in a financial position to take out the curriculum, many of them are the sons of dentists registered under the Act of 1921, who in the old days would have been apprenticed to their fathers, and a part to other students carefully selected from secondary schools. The remainder is spent upon improving the teaching in the Dental Schools so that students may be as well qualified as possible to attend to the requirements of the public. In addition to



this, considerable sums have been granted towards the building of Dental Schools and to improve their equipment so that the teaching may be given in the best possible circumstances.

It will thus be seen that, although the money is primarily expended for the benefit of the public, incidentally the members of the profession benefit considerably, although possibly indirectly. There can be no doubt that the passing of the Dentists Act has considerably improved the status of the dental profession, and that every day it is assuming greater importance in the eyes of the public and taking a higher standard amongst the great professions.

It is too much to hope that the foregoing will completely remove from the minds of dentists all sense of grievance, but it is hoped that it may do something to set matters in their true light and to give a better understanding of the Board and its functions.

Diet and the Native

By Alan McKenzie, M.B., B.S.

FALLACIES die hard. When, some ten years ago, I left Guy's I had been taught and, of course, I believed that many of the diseases I had been studying were those of civilisation, and that a return to a more primitive mode of life, and especially the use of natural and less carefully prepared foods and a smaller consumption of meat would produce a rapid reduction in the incidence of many diseases, notably those of the intestinal tract and of cancer.

The main evidence on which this teaching was based was the markedly lower incidence reported for these complaints among primitive peoples compared with that where a high state of civilisation had been attained. We were led to believe that where the refinements of the kitchen were unknown and where alcohol was not consumed, cancer, cirrhosis of the liver, gastric ulcer—to mention only a few—were also absent. Therefore it was argued, with such diseases absent, a more healthy community must result, and all that was needed for us to banish them from our midst and regain ancestral health was to return to the primitive diet of barbaric days and seek lessons in cookery among the most backward of our subject races.

Since I left Guy's I have spent all my working time among primitive cereal-eating peoples who follow a monotonous and rude menu, and who wear a minimum, and ofttimes less than that, of clothes. Certainly I have not diagnosed gastric and duodenal ulcers so frequently as I expect I should have done in an English practice, and I have certainly seen fewer malignant growths, but neither have I found any unusually healthy and long-lived peoples. On the contrary, I have seen that the general standard of physical fitness among both the more primitive native African tribes and among the rather more advanced Indian immigrants out there is much lower than among similar age groups of the poorer classes at home.

Clearly, then, the absence of these diseases cannot be the whole story. What, then, are the remaining factors?

Firstly, these diseases are not entirely absent. In the very short series of post-mortems that I have performed in Africa I have met both malignant growths and ulcers of the stomach.

Secondly, the diagnosis of gastric conditions is especially difficult, as when dealing with native rural populations the refinements of technique by X-ray and test meal are rarely available, while there is the added difficulty of obtaining a history in an alien tongue and from a patient whose gift of self-expression is scarcely better developed than that of the " comic journal " country yokel.

Thirdly, applying especially to malignant growths, old people are not often brought to hospitals. Their economic value has disappeared, and their relations and friends, and frequently they themselves, can see little use in prolonging their period of uselessness and dependence.

Finally, the average native does not live as far into the cancer age as does the European.

The mainstay of advocates of the simple diet as a preventative of cancer is found in the statistical investigations of Hoffman of the Prudential Insurance Company, who, from the figures available, stated that cancer was eight times more prevalent among civilised than uncivilised communities. Obviously, for a proper comparison of the incidence of a disease in different places equal facilities for diagnosis must exist, and anyone who has worked among primitive races knows that this is rarely attained.

Some years ago Sir Leonard Rogers analysed the results of 1,600 post-mortems on Indian subjects, 90 per cent. of whom were rural dwellers living on primitive cereal diets, and compared the results with 1,000 consecutive post-mortems from St. Mary's Hospital, London.

He found that among this series the incidence of malignant tumours among Indians was 4.6 per cent., while among the London cases the incidence was 13.8 per cent. So far so good; it appeared that Hoffman's calculations were correct. But he found that among those who came to the post-mortem room in India there were only one-fifth the number who had reached the age of 50 compared with the cases in London, and—and this is the significant fact—that three-fourths of the London cases who died from malignant growths had passed their fiftieth year. Taking this into account, and after a very careful and detailed comparison of the two series, he came to the following conclusions :—

That "malignant tumours, including both connective-tissue and epithelial types, are about equally common in Bengal as London, with perhaps a slight excess in the tropical country, contrary to the statements of those who maintain that the civilised nations suffer eight times as much from them as uncivilised peoples." "Sarcomata are twice as frequent in Bengal as London, while epithelial tumours are five-sixths as frequent." "Both innocent and malignant connective-tissue tumours are considerably more common in Bengal than England, while the slightly lower incidence of malignant epithelial tumours in India is more than accounted for by the great excess of persons of the cancer age, of over 40 or 50 years, in England as compared with Bengal."

These are practically the only properly worked-out series from the tropics, and their significance cannot be too heavily stressed.

Contrary to the general opinion, when a member of a primitive race adopts European methods of feeding and living his physical fitness increases. Europeanised food, clothing and housing, which he almost invariably adopts as soon as his earnings will allow, and which become to him and to his friends a mark of his social success, appear to increase his weight and to activate his brain. Some interesting numerical comparisons have been recently made by means of the Erythrocyte Sedimentation Test, which can, I believe, best be interpreted as an expression of the physical well-being of the subject. In good health it is low, while in debility it is high. Marie Thomas in the Dutch East Indies showed that an index comparable with that found among Europeans was only seen in those natives who had adopted European methods of living. An experiment of my own in Tanganyika also illustrates this. While trying to establish a normal figure for the index among Africans I examined in two consecutive experiments the bloods of two numerically equal groups of Africans (there were 13 in each group). The first group were manual workers employed by the Medical Department—men, that is, whose health was well cared for and whose ailments were promptly and properly treated. The second group consisted of clerks and dressers in Government employ—much higher in the social scale, the majority of them adopting, as well as they could, more civilised modes of life. As far as I could find the most striking difference in the habit of the two groups was that the clerical could, by reason of their greater pay, and did eat meat three or more times a week, while the labouring class, on account of its high cost locally, were rarely able to afford meat even once a week.

The clerical group gave an average sedimentation index of 8.9 :—

The highest, 19; the lowest, 2.

The labouring group's average was 29 :—

The highest, 41; the lowest, 11.

In spite, therefore, of the statements of the simple-livers and vegetarian advocates, it would appear that the advantage of a meat diet can be numerically expressed.

An interesting comparison of two African tribes has recently been made by Gilks and Orr and published by the Medical Research Council. The Kikuyu, who live entirely on a vegetable diet, were compared with the Masai, who live on a purely animal diet of meat, blood and milk. The analysis of large numbers of figures showed that neither tribe reached the standard of the European, but that the differences between the two tribes were great. The average height of the Masai was five inches greater than that of the Kikuyu, and his strength, as measured by the dynamometer, was 50 per cent. greater. Among the vegetable-eating Kikuyu the incidence of ulcers, rickets and practically every disease except intestinal stasis was unbelievably greater and the general health much poorer than in the meat-eating Masai.

The incidence of deficiency disease among Africans is not small in spite of the large amount of strong sunlight he receives. His unbalanced and monotonous diet lies so near to—when it does not over-step—the margin of deficiency that the slightest modification which may occur, as on admission to an institution or migration to a place where some accustomed article is missing, or even residence among a tribe whose staple article of diet, though not less valuable, is yet different to his own, may produce in the subject definite signs of a deficiency which often amount to a classifiable disease.

Let us not attribute too much virtue to the diet of the savage, nor too precipitately discard the culinary achievements of civilisation.

Correspondence

Lectures on Treatment

To the Editor of the GAZETTE

SIR,—The complaint which you voice that the subject of treatment has not been given sufficient prominence in the teaching at Guy's is no new one. In the past we were told that the fault was largely ours for two reasons :

1. Not examining the bed letters.

2. Not asking an already harassed house physician for therapeutic details.

Neither satisfied us, and rightly so. On the other hand, it is clear that the visiting physician cannot fully discuss the appropriate treatment of the cases examined by him and yet cover the ground which awaits him on his round. For instance, at least half an hour could be devoted to dealing with the therapeutics of a case of bronchitis ; and in this manner four patients would be seen in the afternoon.

You, Sir, suggest a course of lectures. Possibly this is the best solution, but I doubt it. The following are my objections to the proposition :—

1. Lectures on treatment in the abstract, as opposed to those in the presence of a patient whose history has just been heard, are of less value and almost certainly more easily forgotten.

2. A lecturer has not that intimate contact with his audience that obtains between physician and firm in a ward round. He can, therefore, less effectively bring home the points of special importance. For the same reason the opportunity of constantly asking questions in order to find the gaps in his hearers' knowledge is more or less denied him.

3. A course of lectures on treatment can provide but little that cannot be found in books.

4. Treatment of a disease may need great modification according to the patient's age, financial and occupational circumstances, and the duration of his illness. These factors can be readily assessed in the actual presence of the sufferer, but tend to lose their relative importance in the sterile atmosphere of a lecture theatre.

5. " Lectures on treatment for the benefit of those shortly to enter general practice " is, I submit, starting at the wrong end. Attention to therapeutics should be given from the first day as medical ward clerk.

Nevertheless something must be done about this unsatisfactory state of affairs, and I put forward some tentative suggestions in the hope that they may excite constructive criticism. They are that :—

1. Out-patient teaching should be confined, as far as possible, to the diagnosis and treatment of the actual case in point, and that dissertations on the possible varieties of the disease should be avoided. Incidentally, improved seating accommodation and a blackboard would be very helpful in the department.

2. Combined rounds should be attended, as the teaching is not hampered by the necessity of dealing with a certain number of beds.

3. Each firm should devote one of its usual rounds mainly to treatment. The registrar might be responsible for choosing two or three suitable cases, delivering a résumé on the physical signs leading to diagnosis, and joining in the subsequent discussion on treatment.

4. Special emphasis should be laid on treatment which can be carried out inexpensively in a private house.

5. Students should make a point of studying the pharmacological action of the few drugs of proven value.

6. They should never hesitate to pin their physician down to treatment of any case on which he has taught.

7. Treatment, the value of which is still *sub judice*, should most certainly be defined as such.

Yours, etc.,

A. H. DOUTHWAITE.

Guy's Hospital,
S.E.1.

Royal Medical Benevolent Fund

To the Editor of the GAZETTE

SIR,—For many years I have asked members of the medical profession to subscribe at this time of the year in order that the Royal Medical Benevolent Fund may distribute Christmas Gifts. These gifts are made to poor widows and daughters of our professional colleagues and also to medical men who are infirm or unable to work through illness, and whose savings are exhausted.

I know the times are difficult for everyone, but I feel confident that those who can spare even a small donation will do so again this year so that even greater hardship should not fall on those least able to bear it.

It has been the hope of the Committee to distribute 30*s*. to each of the Annuitants and the poorest of the Grantees at Christmas. I am most anxious

that none should look in vain this Xmas for the gift which can bring a few additional necessities of life and extra comfort to their homes.

It is difficult for us to realise that " these homes " are often only a bed-sitting room of a very cheap rental.

Will you please send what you can and give further help by persuading one of your colleagues also to send a donation—or even just to hand this letter to a friend in the profession. Only by this means can a sufficient sum be raised.

Cheques, postal orders, or even stamps should be forwarded to the Honorary Treasurer, Royal Medical Benevolent Fund, 11, Chandos Street, Cavendish Square, London, W.1.

Yours faithfully,

THOS. BARLOW,
President.

11, Chandos Street,
Cavendish Square, W.1.

" Buy British "

To the Editor of the GAZETTE

SIR,—During the recent period of national economic distress, the country has been urged to " Buy British," in order that home industries may be encouraged and unemployment relieved. Now most of us know that there are many British firms which produce matches not only of superior quality but also at the same price as those of foreign make which at present appear to flood the market. We consequently note with regret that many departments of the Hospital are provided with matches of foreign manufacture.

We feel that not only is this unnecessary and distasteful from a patriotic point of view, but also it is false economy, for the matches themselves are invariably of inferior quality. Although, perhaps, many may think that this is but a small point, surely, however, it forms part of an important principle which such an old-established and worthy institution as Guy's should observe.

Yours, etc.,
IMPERIALISTS.

The College, Guy's Hospital, S.E.1.

Reviews

Midwifery. By " TEN TEACHERS." Published by Messrs. Arnold. *Price* 18*s*.

THIS book, now in its fourth edition, is increasing in popularity among medical students. The idea of its editors in picking ten contributors from the leading schools of midwifery in London is indeed an excellent one, especially as each contributor has criticised and passed as sound teaching each section, regardless of the author. The direct result of this co-operative effort is the safety with which the student may accept the views expressed in the book, since no " crank ideas " are taught, as well may be the case in such a disputable subject as Midwifery.

A new feature of the present edition is the inclusion of an article on blood transfusion and the administration of intravenous gum. One cannot help feeling that a little more practical detail might have been included in the article on transfusion, such as the necessity of citrating the donor's blood when the transfusion is not direct, as it seldom is to-day; in reading this article the student might easily be led into thinking that it is essential to " cut down " on a vein in order to perform intravenous infusion.

The section dealing with the artificial termination of pregnancy is well classified, as is that on abnormal labour. Throughout the diagrams are clear and instructive. This book well deserves the popularity it has gained.

Handbook of Skin Diseases. By FREDERICK GARDINER. Published by Messrs. E. & S. Livingstone. *Price* 10*s*. 6*d*.

DISEASES of the skin are sadly neglected by the average student, much to his regret when " up " for his final examination and later when he goes out into practice. Thus a short treatise on the subject is often sought at the last moment before examination. To those who seek such a book this handbook may be strongly recommended. The busy practitioner will also discover much sound matter among its pages, and should find the book very useful. The text is confined to the commoner skin diseases, and deals with each in a very clear and concise manner. An introduction of 20 pages is very well written and includes a résumé of the common remedial agents used in skin disease. The illustrations are clear and well made. The amount of useful information which can be obtained from so small a book is amazing.

Nursing News

ON Thursday evening, November 5th, Dr. Heatherley, who was a student at Guy's more than 40 years ago and has again been a resident in the College for a short time, gave a lecture on " Bird Life." The Anatomical Theatre was well filled by nurses and other members of the Hospital Staff, and we spent a very happy hour listening to Dr. Heatherley's fascinating stories of the wild birds.

His pictures were wonderful, and are proofs of his skill as a photographer as well as an authority on bird life. We should like to have heard more of the preparations and thrills encountered in obtaining such photographs. Dr. Heatherley only touched lightly on the episodes in a packing-case suspended near the eerie of the peregrine falcons on one of the remote islands of the Scilly Isles. Here, over a period of three years, the peregrine falcons were studied, and it is not surprising that the photographs obtained helped to make the lecturer's reputation.

At the end, the Matron proposed a hearty vote of thanks to Dr. Heatherley, and we tried to show our very real appreciation of his kindness in giving the lecture; the deafening applause, as he said, meant at least " seven curtains."

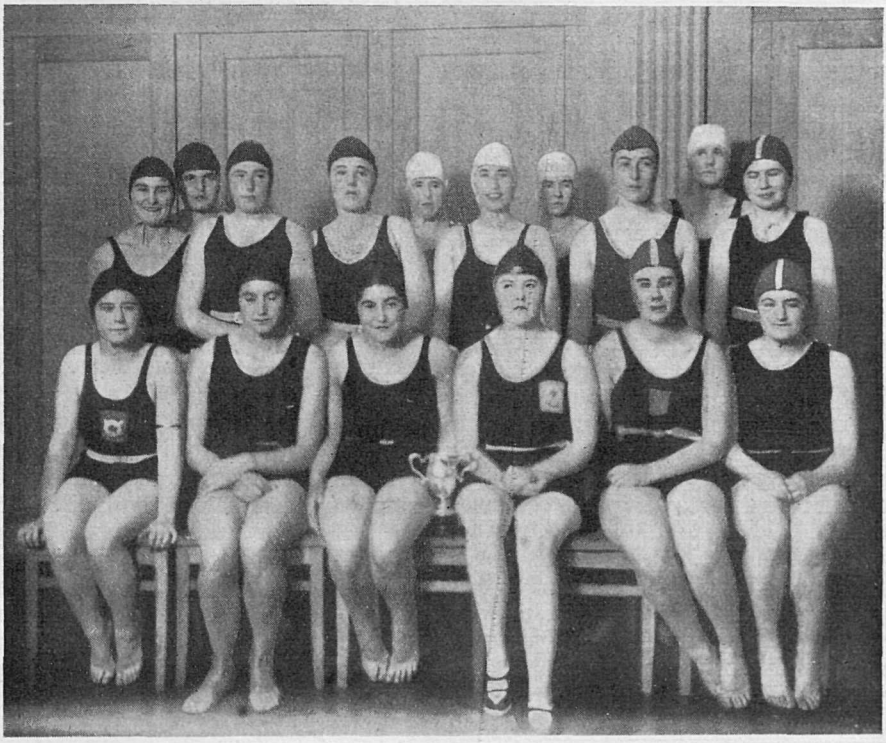
The Swimming Club

THIS has been an unlucky year for Guy's nurses as regards cups for swimming. On October 26th, the nurses held their Annual Swimming Gala in the Nurses' Home Baths. The Baths, as usual, were crowded, and looked gay with Chinese lanterns and decorations. The most exciting event of the evening was the team race for Miss Hogg's Cup between the various women's departments of the Hospital. The cup was won by the Massage Department amidst great shouting and cheering from supporters of the various teams.

Five nurses competed for Lady Fripp's Cup, which is given for style in various swimming strokes. The cup was won by Nurse E. M. Lloyd. There were also several other races, prizes for which were very kindly given by the Matron.

During the evening Miss Ivy Clifford, Breast Stroke Champion of the Southern Counties, and the Misses Fripp gave swimming exhibitions which filled us with envy.

Mrs. Darbyshire, of the Sports' Club, Mr. Thurston and Mr. Howell were kind enough to judge the events. Lady Fripp presented the cups



and prizes, and spoke a few words to the swimmers, saying how much she thought the general style had improved.

Everyone was pleased to see both Miss Hogg and Mr. Whitbread, the Treasurer of the Hospital, present at the gala.

On October 31st the Inter-Hospital Swimming Gala was held at the Royal Automobile Club. The London Hospital was successful in winning the Challenge Cup for the Team Race, but Miss Eurich won the Cup for Diving. We offer her our congratulations.

Sport

Rugby

Guy's v Coventry

THE meeting of these two sides is always an attractive picture, and there was a large attendance to see Guy's avenge the defeat which they suffered at Coventry a fortnight previously. The Hospital succeeded by a placed goal and 2 tries (11 points) to nil, and in this match they achieved one of their best performances of the season.

Guy's were unable to call upon the services of T. Fichardt, who received a nasty kick whilst playing for Middlesex during the week, but luckily P. C. Alexander had recovered from the injury he sustained against Plymouth earlier in the season and resumed his place at right centre three-quarter.

From the commencement it was apparent that Guy's were out to ridicule the form shown in recent matches, and their efforts resulted in a decisive win which they fully deserved. It is true that Coventry lacked the services of three of their outsides in Lole, Harriman and Boucher, but their substitutes, two of whom had represented their county, played so well that it is doubtful whether the regular members of the side could have improved upon their performance.

Gilchrist, who took the place of Boucher at full-back, was particularly good, and showed up very well as compared with Clegg, who had an off-day. He fielded the ball with admirable accuracy, kicked with excellent judgment, and saved his side on several occasions.

On the other hand, the Hospital gave a capital exhibition against a much heavier pack, which included R. S. Roberts (a likely candidate for International honours), who hooked the ball with ridiculous ease.

Windsor Lewis played magnificently—accepting all kinds of difficult passes, he was a continual source of trouble to the visitors' defence, and he never spared himself an inch in his efforts to get through and create openings for his threes. He was admirably supported by P. C. Alexander, who was the best three-quarter in the field. The latter was always ready to slip through the smallest of gaps that presented itself, and was mainly responsible for the scores which led to the Hospital's success.

Coventry kicked off and, following a scrum, Howell started a movement on the blind side which enabled Ashdown, W. Lewis and Alexander to carry play to their opponents' 25. This was followed by a delightful round of passing between Alexander and Giesen, which broke down as the result of a forward pass to Johnson. Soon after, the same trio indulged in another bout of passing, which Johnson finished by a fine run to within a few yards of the line.

Coventry then attacked strongly and, as the result of fine forward rushes, they gained a footing in the Hospital 25, but Clegg sent them back with a huge kick and both Morgan and Lewis were all but over.

The efforts of the Guy's backs were eventually rewarded when Howell, Lewis, Giesen and Alexander carried out a clever movement which resulted in the latter crossing for a try near the posts, which Hogbin failed to convert.

Within a minute or two Windsor Lewis made a splendid effort to get through, but was overwhelmed by numbers and then Alexander made a lightning run through the whole defence of the visitors, and was in the act of touching down when the ball slipped from his arm and the Coventry full-back touched down. Guy's had a narrow escape a little later, when Gilchrist fielded a long punt and just failed to drop a goal.

The exchanges from now until the interval were fairly even, and although there were several rounds of passing on either side, the defences were sound and play was mainly confined to midfield.

During one of the raids by the Hospital, Seldon damaged his hand, and later Hogbin, Johnson and Gascoyne were all badly shaken in turn.

After the interval, Guy's had a few anxious moments when they were penalised for not playing the ball and a little later when Clegg slipped in trying to side-step the Coventry forwards, but Hogbin saved the situation and Windsor Lewis made a capital run which should have ended in a score, but his inside pass was not accepted and Gilchrist cleared. A blunder by Clegg nearly let the visitors in, but their anxiety to get through

cost them a penalty, and A. R. Clarke made a great dribble to near halfway.

Then followed one of the most spectacular tries seen on the ground for some time. Howell started the movement by slipping round the blind side of the scrum and sent out an awkward pass to Lewis, which he collected in his stride. Cutting through the centre, Lewis passed to Alexander, who cut through a narrow gap in the defence and, when faced by the full back, sent in Johnson for a magnificent try behind the posts, but again Hogbin missed an easy chance to convert.

Clever play by Giesen and Morgan followed, and near the end Alexander intercepted a round of passing by the visitors' threes and, after drawing the defence, sent in Ashdown for another try behind the posts, to which Hogbin added the extra points.

Team.—W. B. Clegg, D. E. Ashdown, P. C. Alexander, J. E. Giesen, A. G. Johnson; Windsor H. Lewis (Capt.), J. Howell; J. S. Batchelor, J. P. O'Shea, J. Cunard, I. G. Robin, R.J. Drummond, T. Morgan, R. A. P. Hogbin, A. R. Clarke.

Hockey

Guy's v. Oxford University Occasionals

PLAYED at Motspur Park on November 21st. The ground was in a very bad state, but in spite of this the game was quite fast and proved to be very exciting. The Occasionals brought down a strong side, including Marcon and Kirkpatrick. Guy's adapted themselves to the conditions better than their opponents, and were attacking most of the first half. However, they only managed to score once through Lyne, who flicked in a good shot following a long fight in the muddy circle. Several other opportunities were missed, but Guy's crossed over with a lead of 1-0.

In the second half the Occasionals fought back and some very clever scheming by Marcon at inside left brought them a splendid goal which gave Schofield no chance. A few minutes later they took the lead, Kirkpatrick flicking one in from the edge of the circle. The Hospital had a very bad ten minutes after this, but the defence managed to hold out against numerous attacks, and then, with five minutes to go, Guy's gradually worked their way down the field. Trethowan scored, but was given offside, and it seemed as if the Occasionals were bound to keep their lead. However, from a centre by Tilleke, Dryland passed the ball to Lyne, who shot past the goalkeeper to make the scores level (2-2). Guy's almost won in the last few seconds, but "No side" went and the game had ended in a draw.

The side have every reason to congratulate themselves on the result; everyone played very well under exhausting conditions, and with a little more finish might have won. We were very much indebted to Dr. and Mrs. Poulton for their support.

Result.—Guy's, 2 goals; Oxford University Occasionals, 2 goals.

Team.—J. B. Schofield; G. N. Carrell, F. Hayward (Capt.); T. F. Dodd, A. G. Richmond, S. N. Tinkler; R. O. F. Tilleke, J. W. Dryland, H. O. Lyne, L. Trethowan, C. A. Clarke.

Fencing

Guy's v. R.M.A.

GUY'S were at home to the Royal Military Academy on Saturday, November 7th, and gained a decisive victory in a three-weapon match by 7 defeats to 20.

In foil, J. R. Miles, who was making his first appearance for the Hospital, created an excellent impression by defeating all his opponents in attractive style. His feat was all the more praiseworthy since the other two members of the team, Monkhouse and Forbes, each lost one fight. Forbes nevertheless showed improved form.

Our opponents proved to be very inexperienced in epée, and could only win two fights. Monkhouse was altogether too good for them, and his bouts were over very quickly. Lawrence and Hodgkin each won two fights, but neither was in his best form.

The sabre was distinguished by some fierce hitting, and resulted in another win for Guy's. Monkhouse and Wright were in excellent trim, and demolished all their opponents. Miles was disappointing and rather slow with this weapon, and suffered three defeats.

The match was excellently refereed by Mr. R. C. Dicker, of the Amateur Fencing Association.

Scores: Foil—Miles, 0 defeats; Monkhouse, 1 defeat; Forbes, 1 defeat. Epée—Monkhouse, 0 defeats; Hodgkin, 1 defeat; Lawrence, 1 defeat. Sabre—Monkhouse, 0 defeats; Wright, 0 defeats; Miles, 3 defeats.

Golf

THE President's Prize was played at Sidcup on Wednesday, November 18th.

In the morning the Scratch Prize was won by D. A. Ibbetson with a round of 81, and the Handicap Prize was divided between W. Lewis and R. B. Sumerling, who both returned 77.

In the afternoon the foursomes were divided between H. Cameron, M. W. Pilcher, and D. A. Ibbetson, C. B. Elstob (2 up).

Hospital Information, etc.

Notice

Guy's Hospital Medical School

BEANEY SCHOLARSHIP IN MATERIA MEDICA

The Beaney Scholarship in Materia Medica (including under that term Pharmacy, Pharmacology and Therapeutics) is now vacant.

The Scholarship, which is open to candidates who have received part, at least, of their medical education at Guy's Hospital, is of the annual value of £60, and is tenable for three years.

Further particulars may be obtained from the Dean, to whom applications must be addressed, at the Medical School Office, not later than Monday, December 7th, 1931.

T. B. JOHNSTON,
Dean.

Pass Lists

CONJOINT BOARD.
FINAL EXAMINATION.
October, 1931.

SECTION I.

Pathology.

H. Rosenberg
J. A. Cathie
S. B. Smith
G. C. Post
E. C. Powell
H. V. d'A. Iles
H. G. N. Cooper
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W. L. James
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Midwifery.

*W. H. Owles
L. Kessel
F. R. Hayward
E. H. Crowther Smith
J. C. Read
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J. A. W. Miller
D. H. Irish
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R. G. Reid
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I. A. Cathie
*D. Stone
H. A. T. Wells
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C. B. R. Pollock
T. A. Gavin
S. W. Wright
*R. A. E. Hammond
G. C. Sawyer
G. B. Palmer
S. B. Smith
G. C. Post

* Now qualified.

ROYAL COLLEGE OF SURGEONS.
L.D.S. FINAL EXAMINATION.
November, 1931.

PART I.

Surgery.

A. T. G. Garnett
J. K. Donald
H. G. Jokelson
J. Bromley
T. H. Chignell
J. T. Cramp
S. C. Gill
C. J. Hartley
T. Ireland
B. Law
C. E. R. Mailer
J. F. Paterson
S. J. Redman
B. W. Sage
P. A. Sloane
H. R. Stubbs
H. V. Sydenham
L. D. Dale
C. L. Hudson
L. G. Blackham
R. S. Bruce
H. B. Christian
R. J. Eustace
C. B. de V. Green
C. W. Holmden
H. Kanaar
E. H. Lewis
E. Matthews
C. G. Palmer
R. W. Ross
S. P. Saunders
C. R. Stone
R. B. Sumerling

PART II.

Dental Surgery.

R. W. F. Brotherton
F. W. Clare
H. G. Earnshaw
J. T. Holford
L. R. Millership
D. J. J. Rees
F. R. M. Willis
A. T. G. Garnett
G. B. Brummitt
J. E. Darlow
R. J. G. Grewcock
C. V. Kark
N. Milligan
S. M. Whitteridge
C. L. Hudson

UNIVERSITY OF CAMBRIDGE.
BACHELOR OF SURGERY.

D. Divine

DIPLOMA IN MEDICAL RADIOLOGY AND ELECTROLOGY.

H. W. A. Post

Change of Address

C. P. Blacker, M.D., M.R.C.P., 71, Grosvenor Street, London, W.1. *Mayfair* 6080.

A. H. Dodd, M.R.C.S., L.R.C.P., " Moreton," 107, Lowther Road, Bournemouth.

Papers by Guy's Men

G. W. Goodhard and C. Bolton. Variations in acidity of gastric juice during secretion. *J. Physiol.*, 1931, lxxiii, 115.

T. B. Johnston. Partial duplication of notochord in human embryo of 11 mm. greatest length. *J. Anat.*, 1931, lxvi, 48.

M. Maizels. Alkalosis in vomiting in infancy. *Arch. Dis. Childh.*, 1931, vi, 293.

N. Mutch. Radium by mouth or injection in the treatment of high blood pressure. *Lancet*, 1931, ii, 1013.

Births

POWELL.—On November 19th, 1931, to Ethel Florence, wife of Harold J. Powell, L.D.S., R.C.S. (Eng.), 237, Upper Richmond Road, Putney—a daughter.

DOUTHWAITE.—On November 15th, 1931, at 49, Harley Street, W.1, to Gladys, wife of A. H. Douthwaite—a daughter.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

A Journal of Medicine, Surgery, Dentistry and Hospital News.

PUBLISHED FORTNIGHTLY.

Volume XLV — *12th December 1931* — *Number 1132*

PASSIM

AT this time, when the thoughts of all of us are focussed on the doings of the National Government and more particularly on the efficacy of the emergency Budget recently introduced, it is interesting to consider in what way these measures affect our hospital life. On all sides, of course, we are faced with various economies that are being enforced, but in the Surgery, at any rate, the most striking change has been brought about by the recent increase in the beer tax. Hitherto the number of patients, under the influence of alcohol, who found themselves within the precincts of the Hospital was no small one, and it was the rule rather than the exception on Friday and Saturday nights to find two, if not three, of the Surgery couches strewn with the devotees of Bacchus. Since the imposition of this increased duty a very different state of affairs exists. Whole weeks now pass without the unsheathing of the stomach pump—that instrument so delicately and yet so effectively manipulated by the take-in A.H.S. No doubt an additional factor in the production of this commendable sobriety on the part of the Borough inhabitants is the " cut " in the dole. This last, in combination with the increased taxation, leaves so small a margin as to make prohibitive the consumption of the above-mentioned delectable fluid in quantities sufficient to make conflict with the police inevitable.

We are not suggesting that the intoxicated state has already become a medical curosity. But if the present state of affairs persists we should not be surprised to learn that emergency regulations have been issued to post-mortem demonstrators enjoining them carefully to preserve all cirrhotic livers they may meet in order that future generations of students may, with feelings of awe not unmingled with envy, gaze at these knobbly relics of an era that has passed.

However, this happy state that we forecast above is unlikely to materialise. In the imposition of this added tax the Chancellor of the Exchequer, it would seem, has well-nigh killed the goose that lays the golden egg. Recent figures show that the revenue accruing from this source is now actually less than that derived before the tax was increased. Such being the case, an early repeal of this legislation is likely. There will still, however, remain the interesting speculation as to whether its former habitués will have lost the habit —and it is nothing more or less than a habit—of beer-drinking. Human nature being what it is, we feel that the reversion to the previous tax will be the signal for the return of the old days, and we shall once more hear a husky-voiced porter inform us that, " There is a man in the Ambulance Room, Sir, suffering from C_2H_6O, Sir ! "

WE are pleased to see that the authorities have at last shown a faint glimmer of interest in the welfare of those House Officers who perform their duties in the Surgical block. We refer to the question of their supper, which is provided for them in the Surgeons' Room. Until recently, this has consisted of an uninteresting collection of broken biscuits, a minute quantity of butter, a very limited supply of milk, and tea which is brewed by the House Officers themselves.

Although we know that those who like to drink tea with their supper have no objection to making it, there are some to whom the small amount of caffeine thus consumed late at night means disturbed sleep. These unfortunates have been prevented from consuming that beneficial liquid milk by the limited amount of that article provided. They have, therefore, had the choice of either going to bed thirsty or partaking of a highly contaminated water supply from the tap.

This unhappy state of affairs has, however, at last been changed, and the sufferings of the unfortunate House Surgeon alleviated. For those soothing and nutritious beverages, Horlick's and

Ovaltine, have been provided. We feel certain that this will have a beneficial result on the health of those concerned. Following a refreshing cup of one or other liquid, the tired House Officer will perform his night round in a happy and salubrious frame of mind, and, returning to his couch in the College, sleep the sleep of the just.

THOSE of us who watch with awe the efforts of the gallant few who assail the pinnacle of the profession through the Higher Examinations have recently had much pleasure in recording two meritorious victories obtained by Guy's men. We refer to Mr. J. B. Blaikley and Mr. P. V. Reading, who last week were successful in passing the Final Fellowship. To them we offer our most hearty congratulations. Their achievement somewhat tempers the disappointment caused by the recent depressing M.B. results.

AT the Residents' Going-off Dinner, held last month, Mr. R. B. Sutcliffe was elected President, and Mr. N. Plummer Vice-President, of the Residents for the ensuing term. The proceedings were marked by the comparative sobriety and dignity which at present characterise these functions. The speeches were brief and sparkling, and for the most part uninterrupted. We were pleased to see Mr. F. J. Steward present at, we understand, his first Residents' Dinner for a considerable period.

ON Friday, December 18th, in the Anatomical Theatre, Sir William Hale-White will deliver a lecture on "The Beginnings of Bright's Disease." We feel certain that the success which attended Dr. Fawcett's address on "Thomas Guy and His Times" will be repeated on this occasion.

Obituary

DR. JOHN PHILIP PENDLEBURY

HIS many Guy's friends, men of the middle and late 'eighties, will have heard with the profoundest regret of the death, as the result of an accident, of J. P. Pendlebury, but they may not have learnt of the circumstances attendant on that tragic event, details of which were revealed at the Coroner's enquiry. It would appear from the evidence of a witness of the occurrence that Pendlebury, on the evening of November 18th last, while waiting for a train at South Kensington Station, was seen to reel ("come over giddy," as the Coroner put it), and, before he could regain his balance, fall over the platform's edge at the very moment when a train was entering the station. He was killed instantly.

"Jack" Pendlebury, as he was known to his intimates, entered Guy's in the winter of 1883 and qualified M.R.C.S., L.R.C.P., some $5\frac{1}{2}$ years later. He was one of the most popular men of his time, and it was a matter of much gratification to his friends when he was appointed Resident Obstetric and House Physician in the year following qualification, thus giving us a further period of grace in which to enjoy his company. On leaving Guy's, he devoted the best part of the next two years to world travel before finally settling down to practice at Ormskirk, on the further outskirts of Liverpool. Here he was destined to spend the rest of his professional life and to become, in the fulness of time, one of the leading citizens. In each and every movement, religious or social, designed to improve the amenities of the community in which he lived, he, aided by his wife, took an active share.

A man of high character, unswerving loyalty and charitable outlook, his patients, townspeople and friends held him in the most affectionate regard and in return he gave them of his very best.

In his passing Guy's loses one of her most devoted sons.

Speech

A Paper read before the Physiological Society on November 26th, 1931, by Mr. J. R. Forbes

MR. CHAIRMAN and GENTLEMEN,—Speech, or language, in its widest sense covers the sum of all the means which man employs to express his thoughts. This expression may be by the use of gestures (mimitic language) or by the use of words (phonetic language), or by the use of writing (graphic language). In common usage, however, the designation "speech" is confined to the second of these categories, and it is with this method of expression and with the allied graphic method that I am chiefly concerned. The sounds of speech are

produced by movements of the tongue, lips, larynx, etc. These movements are regulated and controlled by certain parts of the brain, such as the cerebellum and motor cortex. Breakdown of these controlling centres causes difficulty in the actual motor performance of speech, a condition known as dysarthria, which is almost inevitably accompanied by difficulty in the performance of other acts such as mastication or swallowing. Speech fails in dysarthria because of defective vocalisation, and the condition should be carefully distinguished from aphasia, which I will describe in a moment.

Since speech is the most highly evolved and the most complicated function of the human brain, it is reasonable to expect to find some higher control than the motor cortex for the complicated movements involved. For not only is there a motor side to speech, but an equally important sensory side, auditory in the case of phonetic speech and visual in the case of graphic speech. Countless researches have been made with a view to localising the so-called " higher speech-centres," but since it is probable that the simplest act of speech involves the activity of all parts of the cerebral cortex, the situation with regard to localisation remains obscure. We may safely say, however, that it is the left hemisphere which is chiefly concerned in the control of speech. I shall have more to say on this point later. Disturbances of speech which are not due to defective phonation (*i.e.*, dysarthria) are usually grouped together under the term aphasia. It is important, however, to remember that aphasia is not a disease, but a symptom. It is the external manifestation of disorder of function of the speech mechanism. Aphasia may or may not be associated with difficulty of articulation. Quite often the aphasic can articulate perfectly well, but he uses his words wrongly, so that his speech may be a meaningless jargon. Dysarthria is always manifested by difficulty in articulation. In the course of this paper I shall have much to say about aphasia; and, lest I should be accused of wandering too much into the realm of the clinician, I will remind you that, speech being a purely human function, no evidence can be obtained by experiments on animals, and, of course, such experiments could not be performed on human beings. In consequence, our knowledge (such as it is) of the mechanism of speech is derived almost wholly from the study of disorders of the mechanism.

Before considering the various attempts which have been made to elucidate the subject of speech, it would perhaps be advisable to describe speech development in the normal child. The following is a brief summary.

I.—THE PRE-LINGUISTIC PERIOD (*before comprehension or utterance of speech begins*)

Crying is the first expressive inarticulate sound, and begins at birth. Within the first five weeks, notwithstanding the uniformity of the vowel sounds, the sounds of the voice are so varied as to tell whether the child suffers hunger or pain.

Laughing.—Preyer[1] " observed an audible and visible laugh accompanied by a gleam of the eye on the 23rd day."

Babbling.—The change from screaming to babbling occurs in the first six months. It is a change to a more utilisable type of utterance for human speech. Babbling is a means of exercising the speech organs, just as kicking and sprawling are means of exercising the limbs. During the second six months imitation becomes noticeable in the babbling, *i.e.*, the sounds uttered resemble the speech of the child's environment. A further development of babbling is mimic reading aloud of books and newspapers.

Another curious phenomenon is *echolalia*, which is the parrot-like repetition of words heard, without the least understanding of their meaning. No doubt this mechanical repetition plays an important part, as a preliminary exercise, in the development of actual speech.

II.—THE ACQUISITION OF INTELLIGENT SPEECH

By six months the awakening intelligence of the child has begun to interpret the various tones of voice, facial expression and gestures of the people around. The understanding of spoken words comes considerably later, and precedes articulate speech. The meaning of " papa " and " mama " is learnt by the end of the first year. About the middle of the second year realisation comes of the meaning and purpose of speech, that everything has a name; after this the understanding of words and phrases increases rapidly. This is the stage of the one-word sentence. Jesperson[2] denies the assertion of earlier workers that the " one-word sentence " is a purely emotional outburst, but adds the statement (significant in view of the work of Hughlings Jackson) that " without strong feelings the child would not say much."

A temporary phase of inventing words may be passed through, *e.g.*, Preyer's son Axel, said " Momm " when hungry, and called food "Mimi." A very interesting case is reported by Dr. Romanes[3] from America, in which a child of English-, or rather American-speaking parents, with no French-speaking people in the house, invented and employed words which closely resembled the

French equivalents, *e.g.*, "feu" for light and "nepa" for not.

A speaking vocabulary is gradually acquired, and the child becomes capable of connecting several words to express one thought. About the beginning of the third year verbs begin to be used. The utterance at first tends to be jerky; it may be that the fusion of several thoughts and attitudes into one whole is as yet incompletely effected. Similar phenomena are shown by some aphasics. By the 33rd month the child has progressed so far as to use sentences of some length. A feeling of causality begins to be expressed in language, and questions are asked to the point of weariness. Inflexions are acquired with increasing facility, grammatical errors become more rare, and at the end of the third year the child's speech approximates closely in intonation to those around him from continuously listening to and imitating them.

There seems to be no reason to doubt that while the child is learning to articulate, both hemispheres are being utilised for speaking movements. When he reaches the stage of learning to read and write, however, the situation becomes more complex, since a visual factor is introduced. Moreover, he learns to write with one hand, and that the right hand. We must suppose that now, in the act of writing signs that stand for sounds, he uses largely or entirely a part of his left hemisphere only, as far as the physiological mechanism is concerned. The potentiality of development of "speech centres" in both halves of the brain is weakened as the child becomes definitely right-handed, and the "speech-centre" becomes localised in the left hemisphere. It is doubtful, however, if the potentiality for a "speech centre" in the right hemisphere ever entirely disappears. Indeed, it may be called into activity and may begin to function when the left "centre" is destroyed. It is very often stated that in left-handed people the "speech centre" is in the right hemisphere. This is not strictly accurate, and from the point of view of speech it is probably better to divide people into left-brained and right-brained stocks rather than into left-handed and right-handed stocks, so that a left-handed man, notwithstanding his left-handedness, may have a left speech centre because he belongs to a left-brained stock.

Let us now consider the attempts which have been made to solve the problem of speech. The question can be approached from three standpoints: firstly, the anatomical; secondly, the physiological; thirdly, the psychological. It must not be supposed, however, that any one of these three aspects of speech can be considered separately from the other two. All three are inextricably interrelated, just as are function and structure, so that we cannot consider any one as dominating the others any more than we can say that function determines structure or structure determines function. This was the pit into which most of the earlier workers on speech fell, for they ignored almost entirely the psychological side.

We find the first attempt to explain speech in the writings of Franz Joseph Gall,[4] founder of the science, or pseudo-science, of phrenology, who died in 1828. He was moved to formulate his theory that the brain exercised an influence on the conformation of the skull by observing that two of his schoolfellows, both of whom possessed excellent memories, had bulging eyes. Whence he concluded that what he called the "faculty" of memory was situated in the anterior lobes of the brain. His theories on speech are scanty and unimportant, but his localisation of "faculties" caused great controversy, since most people at that time held that the brain acted "as a whole." The eminent physician Bouillaud, while rejecting the phrenological element in Gall's teaching, accepted the principle of localisation of function, and placed the centre for articulate speech in the anterior lobes.

In 1861, Paul Broca was the head of the surgical unit at Bicetre. On April 11th a man named Leborgne was admitted to the surgical wards suffering from gangrene in the right leg. He was completely aphasic and had been so for 20 years. He understood all that was said to him and his hearing was perfect, but to whatever question he was asked he always answered, "Tan, tan," accompanied by expressive gestures. When angry he added to his vocabulary an oath. He was otherwise fairly normal. He died on April 17th and Broca performed an autopsy immediately. The brain on the left side showed destruction of the posterior part of the middle and inferior frontal gyri, the lower part of the pre-central gyrus, part of the insula, and part of the superior temporal gyrus. In the same year Broca examined the brain of another equally speechless man, and again the lesion was in the lower frontal convolutions. Broca's communications[5] caused the greatest excitement in the medical world of Paris. Bouillaud welcomed him as an ally. Localisation of speech became a political question; the older Conservative school clung to the conception that the brain "acted as a whole," while the younger Liberals and Republicans passionately upheld the theory that different functions were exercised by different parts of the brain. Numerous cases were brought forward in support of Broca's statements, but it was not long before autopsies were reported which told against

the localisation of a centre for speech in the lower frontal convolutions. Broca himself found a case in which complete motor aphasia (or aphemia, as he called it) was the result of a lesion at the posterior end of the lateral fissure, the inferior frontal gyrus being untouched. However, a little thing like that did not worry the fervid supporters of Broca—although, to be fair, the great man himself lost no little sleep over it.

We now come to the work of that great, and till recently sadly neglected, physician Dr. Hughlings Jackson,[6] of London Hospital. He was a remarkable pioneer in this field of research, and his views do to a large extent coincide with those of modern workers. The extraordinary neglect of his work by his contemporaries was due firstly to his extreme modesty, secondly to the difficult style in which his papers were written, and thirdly to the fact that his views were quite foreign to the ideas of the day. He was the only man at the time to recognise that the phenomena of speech are primarily psychical, and only in the second place susceptible of physiological or anatomical explanation. His attitude was strictly phenomenal. He never deduced his observations from his hypothesis, as did so many of his fellow workers. In his first lecture, delivered in 1864, he classified disorders of speech into dysarthritic and aphasic, and the latter defects he placed in two categories, viz.: (1) Cases in which the patient is wholly or almost wholly speechless; (2) cases in which the patient has plenty of words but uses them wrongly. He divided normal speech into two distinct forms (and here he strikes the note which sets the key of all his subsequent work), namely, intellectual (*i.e.*, the power to convey propositions) and emotional (*i.e.*, the power to exhibit stress of feeling). He pointed out that in aphasia it is invariably intellectual speech which is affected, whereas emotional speech may be entirely conserved. This is shown by many clinical cases in which the patient has entirely lost the power of propositional speech and yet can, when roused, swear with regrettable fluency. An instance is given by Dr. Kinnier Wilson,[7] of King's College Hospital, of an aphasic who saw a Zeppelin shot down in flames one night, and under the stress of his emotion ejaculated, "Hallelujah!" which word he has never since been able to repeat "propositionally." Milder cases show the same phenomenon, as instanced by the patient who was unable to say "no" to order, and plaintively replied, after many repeated requests and under the stress of emotion, "I can't say 'no'!"

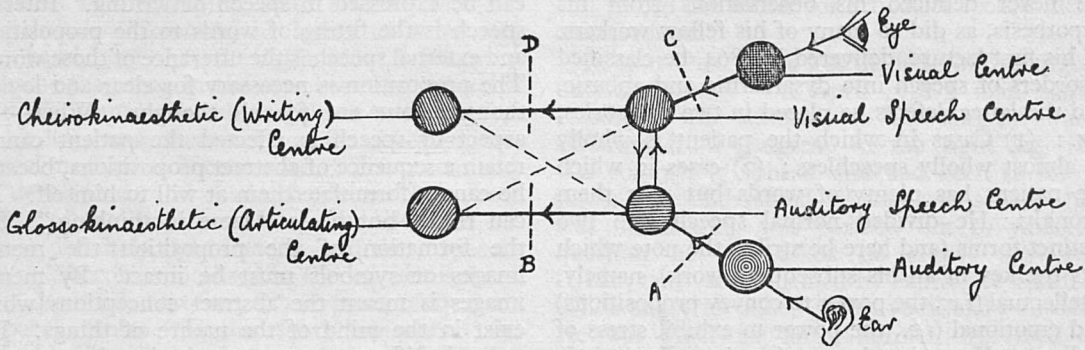
Loss of speech is, therefore, the loss of power to propositionise. Writing is affected as part of a failure to propositionise in words. The explanation of the conservation of emotional speech in aphasics may be that the mechanisms are not destroyed, but only greatly impaired, so that only powerful stimuli can "get through." At the same time we must not forget that many of the words used in emotional speech may possibly have become almost automatic, and as such hardly come within the category of speech. Henschen suggests that these "acquired automatisms" may be located in the right hemisphere.

Jackson also clearly defined the term "internal speech," which had, under the various titles, "internal speech," "langage intérieur," and "das innere Sprache," had the most diverse meanings given to it. Having shown that speech is not simply the utterance of words, but is essentially the formation of propositions, he pointed out that there is no difference in this respect between internal and external speech, except that external speech has, and internal speech has not, passed over the vocal organs. The condition of internal speech can only be discovered by writing. Behind both external and internal speech lies the proposition, which, when verbalised, can be expressed in speech or writing. Internal speech is the fitting of words to the proposition, and external speech is the utterance of those words. The proposition is necessary for clear and logical thought, but not for all thought. When this aspect of speech is affected the patient cannot retain a sequence of abstract propositions, because he cannot formulate them at will to himself. He can think, but he is "lame in thinking." For the formation of the proposition the mental images or symbols must be intact. By mental images is meant the abstract conceptions which exist in the mind of the nature of things. For example, if we say to an aphasic whose mental images are intact, "The horse is swift," he nods his head, because he still retains in his mind the images or conceptions of a "horse" and of "swiftness." Jackson pointed out that in the majority of cases of affections of speech the mental images are intact. This is a very important and much neglected contribution to the theory of speech, because for many years afterwards almost every hypothesis which was propounded presupposed some defect in word images. Those cases in which the mental images are affected Jackson called "imperceptive." "Imperception" (or agnosia, as it is now called) is on the receptive side what aphasia is on the motor side, and a patient with imperception shows signs of inferior comprehension of what is said to him.

Throughout the whole series of his papers Jackson emphasised the psychical nature of speech, and he held that it was fallacious to attempt

to localise the various activities into which speech may be analysed by introspection or by disease in various portions of the cortex. He says, " To locate the damage which destroys speech and to localise speech are two different things. The damage is, in my experience, always in the region of the corpus striatum."

And now we must leave for a while the voice of Jackson crying in the wilderness, and consider what Head calls " the school of the Diagram-makers." The founder of the English school was H. C. Bastian,[8] of University College Hospital. His whole work was founded on two false axioms : (1) " We think in words " ; (2) " Words are revived in the cerebral hemispheres as remembered sounds." Despite the enormous popularity of his views, he has contributed very little of permanent value to the subject, and it would be wasted time to consider his work in detail. I have, however, reproduced here his famous diagram, which is so simple that it requires no explanation, and which he took to explain all the phenomena of aphasia. It was, I need hardly say, greatly appreciated by candidates for examinations.



A lesion at A caused word-deafness, a condition which destroys the power to understand spoken speech. A lesion at B destroyed the power to speak (motor aphasia). A lesion at C caused word-blindness or alexia (loss of the power to understand written words). A lesion at D abolished the power to write (agraphia). The only drawback to this beautiful scheme was that the lesions found in the post-mortem room were often much more extensive than those postulated in the lecture theatre. Even Bastian admitted that " the difficulties of reconciling the persistent and often-verified clinical condition with the post-mortem record are extreme." He did not recognise that what he called the " clinical condition " was nothing more than a translation of the phenomena into *a priori* conceptions, which had no existence in reality. Bastian's theory of separate speech centres had a great vogue, and for a time there was a rage for diagrams. In the newly born German school Wernicke[9] invented " sensory aphasia," and located the centre which was destroyed in this affection in the superior temporal gyrus. Sensory aphasia was characterised by complete inability to comprehend oral speech. Motor aphasia was, he said, caused by destruction of Broca's area, and was characterised by inability to speak. He illustrated his results diagrammatically. And so the deadly process of diagram-making went on, to reach its climax in the notorious schema of Lichtheim, in which even a dominant centre for consciousness was not forgotten. The time was ripe for a ruthless destruction of false gods, and a return to systematic and empirical observation of the clinical manifestations of disease.

In 1906 Pierre Marie startled the medical world with three papers in the *Semaine Medicale* on " Revision of the Question of Aphasia." The first of these bore the aggressive title, " The third frontal convolution does not play any special role in the function of language," while the third contained an account of a re-examination of the hemispheres of Broca's first two patients, which had been preserved in the Musée Dupuytren. Marie declared that Broca's motor aphasia was not a clinical entity but a syndrome. It was a combination of two distinct troubles which he called " anarthria " and " aphasia." By " anarthria " he understood simply the inability or difficulty of articulating words, internal speech being intact. Anarthria could exist alone and had nothing to do with aphasia. It was, he considered, caused by lesions in the region of the insula and corpus striatum. On the other hand, " aphasia " was the sensory aphasia of Wernicke, and was the only kind of aphasia. He re-examined the brain of Leborgne, Broca's first patient, and showed that the lesion far exceeded the inferior frontal gyrus ; it also included Wernicke's zone, which supported his theory.

These revolutionary ideas caused great excitement. Traditional belief in the classical doctrines was rudely shaken, and the whole problem of disorders of speech was thrown into the melting-pot. The period which follows is one of chaos in which leading men held views which were mutually incompatible. It is impossible in the time at my disposal to trace each of the multitudinous theories evolved at this time, and I will content myself with a brief reference to the more important. A tendency was growing to regard disorders of speech from their mental aspect. Stress was increasingly laid on the psychological factors in the use of language, but it was not until the war produced unrivalled opportunities for studying cases of aphasia of the most diverse types that this line of research was utilised fully. Henschen and his followers elaborated the anatomical side of speech. They upheld, and still uphold, the classical divisions of aphasia into "word blindness," "word deafness," motor aphasia," etc. and postulate the existence of separate independent speech centres.

Von Monakow[10] and his theory of diaschisis have shed a good deal of light on the hitherto unexplained transitoriness of many forms of aphasia, but his work is primarily of interest to the clinician.

One of the first physicians to adopt a frankly psychological attitude towards speech was Arnold Pick,[11] who died in 1924. He showed a remarkable knowledge of and sympathy with the ideas of Hughlings Jackson, and accepted the view that disorders of speech were due to failure to produce a propositional statement. He divided the processes on the way from thinking to speaking into Intuitive Thought, the Proposition, the Grammatical Schema, and the Explicit Verbal Formula. The first phase is the mental attitude ; here thought is still undifferentiated. In the second phase (the proposition) ideas are distinguished, but are still without verbal expression. The third comprises the schema or layout of the phrase. The fourth is the stage of the choice of words.

I now come to the most modern views on the subject of speech, as expressed by Sir Henry Head,[12] of London Hospital. Before giving an account of his work I must warn you that his conclusions are by no means universally accepted. No one, however, will deny that he has made very many valuable contributions to the subject, and I, for one, am quite convinced that his theories are much nearer the truth than those of any of his antagonists. He has made an attempt, like Jackson, whose influence he readily admits, to study the phenomena with an unprejudiced mind. He started by inventing a new series of very valuable tests for aphasia, which he had ample opportunity of trying out on the numerous cases of aphasia which occurred as the result of wounds received in the War, and from the accumulated data he has formulated his conclusions.

To the group of functions which suffer in high-grade disorders of speech, Head applies the term "symbolic formulation and expression." This somewhat fearsome designation is, he explains, purely empirical, and signifies that the power to manipulate such symbols as words and numbers is of all most profoundly affected. Acts of symbolic formulation and expresison are of a higher order than motion, sight or hearing. Consequently, he does not consider that the clinical manifestations can be classified as "motor," "visual," or "auditory" defects of speech. Moreover, he does not believe that the speech-language function can be divided into understanding and uttering words, reading and writing. These processes are so inextricably interrelated that they stand or fall together. So-called "pure" affections of speech are impossible. Head has classified the aphasias roughly into four main groups, to each of which he has given a name chosen from the most salient defect. He insists, however, that this is by no means a rigid classification, and any combination of the varieties may be present.

I.—VERBAL APHASIA

This consists of a difficulty in forming words for internal or external speech. The patient may even be reduced to almost complete dumbness, but he understands most of what is said to him. Writing is affected to much the same degree as speaking. It is this group of defects which is mainly responsible for the condition described by Broca as aphemia, and is often called slight motor aphasia.

II.—SYNTACTICAL APHASIA

Is essentially a disorder of balance and rhythm ; syntax suffers greatly. The patient has plenty of words, but their arrangement into co-ordinated phrases is defective. Speech, once started, is voluble, and words are emitted with great rapidity. Sometimes each one is comprehensible, but the phrase has no meaning ; in other cases the words are pure jargon. He understands most of what is said to him, and the power of writing is in excess of that of articulated speech.

III.—NOMINAL APHASIA

Comprises loss of power to use names and want of comprehension of words and other symbols. The patient cannot give a name to an object, and

even has difficulty in pointing to a named object. Reading is very difficult and writing is grossly affected. The significance of numbers and the power to do simple arithmetic are usually affected. Games such as cards, which demand rapid recognition of names and power to register a score, are impossible, though draughts and dominoes may be played correctly.

IV.—SEMANTIC APHASIA

Consists in a want of recognition of the full significance of words and phrases apart from their direct verbal meaning. The patient may understand each word or short phrase exactly as he can comprehend the details of a picture, but the ultimate meaning escapes him. He fails to grasp the final aim or goal of the action imposed on him from without. He cannot formulate a general conception of what he has been told, or has read, or seen in a picture. He can read and write, but the result is confused and inaccurate. Most jokes are incomprehensible and card games are impossible. The patient is useless for anything but the simplest employment; yet his memory and intelligence may remain on a comparatively high level.

The higher the propositional value of the mental act—that is to say, the harder the intellectual task set, the greater difficulty will it present to the aphasic. Thus, a patient may be able to hold up his hand when told, but he is unable to carry out a command to touch his ear. The addition of the second factor has rendered the task too difficult. Again, a patient with nominal aphasia may be unable to name a colour, such as black, placed before him, but calls it, " what you do for the dead." This metaphorical mode of expression is simpler than a name consisting of a single word.

The degree of affection of a form of behaviour in aphasia depends on the recency of its acquisition. For example, the power of speaking an acquired foreign language is much more affected than the native tongue.

Head denies that there are " centres " in the brain for speaking, reading, writing, or other forms of behaviour comprised in the normal use of language. On the other hand, there are certain areas in which lesions do tend to produce certain types of aphasia. These areas are usually in the left hemisphere. Lesions over the lower portion of the central convolutions tend to produce the verbal kind of aphasia. Injury to the temporal lobe leads to disordered rhythm and syntactical defects. A lesion between the post-central fissure and the occipital lobe produces semantic aphasia, while damage in the neighbourhood of the angular gyrus affects mainly the nominal value of words.

To summarise briefly the conclusions arrived at in this paper :—

Speech is primarily a psychical process and is only in the second place susceptible of physiological or anatomical explanation.

Normal speech is of two kinds, viz., intellectual or propositional, and emotional. Loss of speech is the loss of power to form propositions.

The proposition is necessary for clear and logical thought, but not for all thought. When this aspect of speech is affected the patient can think, but he is " lame in thinking."

The fitting of words to the proposition constitutes internal speech, and the utterance of those words constitutes external speech.

For the formation of propositions the mental images must be intact. In the majority of cases of speech disorder they are intact.

The loss of power, in affections of speech, to carry out a given task depends upon the intellectual complexity of the task. The higher the propositional value of the act, the greater difficulty will it present.

Recently-acquired forms of speech and behaviour tend to be affected by disease more than the more deeply-rooted forms. Defects of speech cannot be classified as " motor," " visual," or " auditory," since none of these conditions occurs unmixed with the others. Only a rough classification, such as into verbal, syntactical, nominal and semantic groups, can be made.

Cerebral localisation of " speech centres " is impossible because of the essential psychic nature of speech. On the other hand, there are areas of the brain within which structural injury does tend to produce a certain group of symptoms, and these areas are generally in the left cerebral hemisphere.

In conclusion, I hope that in this brief consideration I have succeeded, at least with some of you, in clarifying instead of rendering more abstruse this most complex and yet most fascinating problem of speech.

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GREAT MINDS AT WORK

Dental Society

THE first meeting of the Society was held on Monday, November 2nd, 1931, 78 members being present.

The President, G. B. Pritchard, Esq., L.R.C.P., M.R.C.S., L.D.S., read as the subject for his presidential address a paper entitled, " Twenty-five years at Guy's." The paper was well received by those present.

D. J. Wardless also read a short communication entitled, " A Case of Interest in Private Practice," from which interesting paper we learnt quite a lot, as a number of people debated upon the cause of this unique case.

During this meeting Rules 5 and 7 were changed, and the changes were adopted by those present.

The second meeting of the Society was held on Monday, November 16th, 96 members being present. A very interesting paper was read jointly by F. J. Maldon and M. D. Pilcher, Esq.

H. H. Kenshole, Esq., L.R.C.P., M.R.C.S., L.D.S., read us a very interesting Casual communication, which was well received.

The next meeting was held in the Physiological Theatre on Monday, November 23rd, at 5 p.m., when J. P. Spiller, Esq., read a paper on " Fused Porcelain Inlays—Uses and Construction." This was preceded by a Casual Communication read by C. de V. Green, Esq., entitled, " A Case of Salivary Calculus."

Twenty-Five Years at Guy's

The Presidential Address read before the Guy's Hospital Dental Society, November, 1931, by G. B. Pritchard, Esq., L.R.C.P., M.R.C.S., L.D.S.

GENTLEMEN,—It is just 25 years since I entered Guy's for the first time, and it has occurred to me that a short account of some of the changes that have occurred in our Dental School since that time might be of interest to you.

Six years ago the Hospital celebrated its Bicentenary, and the Medical School its Centenary. The Dental School is comparatively young, and has only been in existance for 42 years. Founded in 1889 with one student and with accommodation for only 11 more, it has grown to be the largest of the London Schools of Dentistry. F. Newland Pedley was Dental Surgeon to the Hospital and E. C. Perry was Dean of the Medical School at that time, and it must be gratifying to them to know how successfully they planned.

In 1889 the first Conservation Room was built and opened—a small room containing 12 wooden chairs.

In 1893 the building which forms the nucleus of the present Dental School and Hospital building was opened. It was occupied partly by the Dental Department and partly by the Departments of Chemistry and Physics. We had that part of it which lies to the south of the Works Department courtyard.

When I entered the School in 1906 no further alterations had been made. In that year the School made an important change in the principles of teaching dentistry, by opening a department for first- and second-year students. It had been the custom for a prospective dental surgeon to cut his curriculum into two distinct and widely separated parts. For two years he had to be, actually or theoretically, the articled pupil of a dental surgeon, who, for the consideration of a large premium, taught him all there was to know about mechanical dentistry. In the majority of cases this probably did occur, and the student, after the two years spent in this manner, entered the Dental School as a first-year man, with a good knowledge of his subject, to complete the two further years necessary for his diploma.

There were, of course, exceptions, but the greatest disadvantage of this system was that the pupil had no opportunities of adapting his work in the mouth. The making of the six dentures necessary for his first professional schedule had always to be carried out in his first six months at hospital. His chemistry and physics, too, were usually studied under difficulties. They were either taken at technical classes, if the town in which he lived was fortunate enough to possess such facilities, or deferred also to his first six months at hospital.

To come back to our School once more, which occupied no more than the whole of the south side of the present building. The entrance was by a door, opening into a narrow lobby, where the almoner's office is to-day. From this lobby one entered the chart room and patients' waiting-room. They occupy the same position to-day, but that ground floor has served other purposes at intervals.

From this lobby a narrow stairway with hairpin bends ran up the corner of the building, opening on to the mechanical laboratory on the first floor, the site of which is now occupied by the denture room and the third-years' laboratory. On the second floor was the Conservation Room. It was arranged with the chairs in three rows, in tiers all facing the yard. There was the dress circle there too, facing over the park. There were no clinical or demonstration rooms then.

The morning surgeons' clinic was held in the centre chair of the middle row, proudly isolated from the rest to give room for the attendent students by the omission of the adjacent chairs on right and left. A brief description of the chairs must not be omitted. They were of the latest type in 1893, but by 1906, when I first met them, their bearings had become rather worn. They were not pump chairs, but were wound up like an old-fashioned car. Occasionally the ratchet slipped from its associated cog to precipitate the chair and its load suddenly to ground level. There were 55 of these chairs.

Now let us consider the mechanical laboratory which was also the metallurgical laboratory; which housed the first-year's students working for the first professional examination, and also, for my first year, the pupils in mechanical dentistry, as we were then called.

The first-year's student had a very busy first half-year. He had come to hospital signed up for two years' work, or sometimes three, in a private workroom, and that was all. He had to complete six dentures for the mouth, helped by the Probationary Demonstrator. (There were no demonstrators of Prosthetic Dentistry then.) There was a weekly three-hours' class of mechanics and also one of practical metallurgy. There was probationary work. Many of them were doing chemistry and physics or had started to dissect. There were anatomy and surgery lectures and also dental anatomy and surgery lectures. There was a lot to do in the two years available. Into this laboratory came the pupils in mechanical dentistry until they became numerous enough to have one of their own, and this became necessary after only one year.

I had the honour of being the first, and for a time the only one, of this rather unknown species of student, and I occupied one filing block in the mechanics' office, with room for the mechanic on one side and the laboratory boy on the other, and was generally regarded, I believe, as an accessory laboratory boy. Anyhow, I made a number of good friends, whom I still hold, by filing up their cases for them.

During this, my first, year half the patients' waiting-room was taken and converted into the pupils' laboratory in anticipation of a larger entry in 1907, and, in fact, some 16 pupils were at work at the beginning of the second year of the new system.

We had many advantages over those educated in the older way who were to enter with us as third-year students. We were able to do chemistry and physics in our first six months and biology (if doing medicine) in the second. We were able to get signed up for our dentures made for the mouth, and did many more than the regulation six. In our second year we did our official courses of practical dental mechanics and metallurgy, and were, therefore, able to sit for the first professional examination at the beginning of our third year, and in this way to obtain a six months' start of our contemporaries who had done their mechanics in private workrooms.

It was thought, at that period even, that it was rather risky to take time from the study of practical dental mechanics to work at chemistry and physics, and no one could have imagined that only some 20 years later so much more time would be taken from this all-important and essentially practical subject for the study of anatomy and its kindred subjects. By the end of a second year, in 1908, this new laboratory accommodation was already overcrowded and the students' laboratory on the first floor was taken over for the pupils, the students in their turn taking over the pupils' smaller laboratory. By this time Mr. R. R. Clark had arrived on the scene to take charge of the students' laboratory.

In 1909 two Staff Demonstrators of Prosthetic Dentistry were appointed for the first time, to assist Mr. H. L. Pillin, one of the dental surgeons and Demonstrator of Dental Mechanics, in the instruction of the pupils. These arrangements held good until 1911, by which time the overcrowding of all departments necessitated the first stage of the enlargement of the School. This was completed the following year.

The departments of chemistry and physics on the completion of the new medical school had been transferred in 1911, and the Dental School took over their vacant accommodation and commenced to build. The chemical laboratory became the new part of the mechanical laboratory on the first floor to the north and each sides of the yard, and part of the physics laboratory became the present metallurgical laboratory.

An additional story was built on our new laboratories on the north and west sides, which, with the inclusion of the Physics Theatre on the east side, allowed the new Conservation Room to surround

the yard completely. This great improvement provided much more accommodation, and 80 of the present pump chairs were installed with a completely new drainage system, with space for 20 more chairs when necessary.

A room in the north-east corner was cut out of the new Conservation Room for the surgeons' clinical demonstrations. Following these changes the laboratory on the ground floor reverted to its original purpose as a chart room and patients' waiting-room. The pupils, or first- and second-year students as they were now called, took over the new mechanics' laboratory, with an extension through to the east end of the old laboratory. The remainder of this old laboratory was again turned into the third year's laboratory.

The Tower staircase, which had always been there, came into dental use for the new laboratories, and a ground-floor room, where the X-ray room now is, was turned into a probationary room.

In 1913 the X-ray Department was started in a small room, now dismantled, to the right of the Tower steps. In the same year the first appointment of Resident Dental Officer was made. It was held for years by Mr. Bull, who had a microscopic office on the ground floor exactly where Mrs. Archer now stands behind her desk in the waiting-room.

The staff was small in 1906. There were three full and four assistant surgeons. From then until 1910 there were but four full and two assistant surgeons, four staff demonstrators of practical dentistry and one of orthodontics. It was not until 1909 that two staff demonstrators of dental prosthetics were appointed to supervise the pupils in the laboratory and especially their denture cases. Up till then all dentures were carried out under the directions of the very much overworked demonstrators, one for each morning and one for each afternoon. There were no afternoon surgeons.

The extraction rooms were always in Out-patients. The equipment and procedure now are very different. The chairs were of the wooden armchair type and were firmly fixed to the floor. There was nowhere a special dental department for children, and the extracting rooms operated every morning for everybody. The ordinary extraction rooms, as they were called until only a few months ago, were definitely ordinary—that is to say that, however many patients were seen, and there were sometimes over a hundred, only six ever got a local anæsthetic. It was a matter of blood and forceps, and we were taught to be quick. We now teach deliberation, but I do not think we left more apices in those days than we do now.

In the Gas Rooms continuous gas was not given, and the great test was the extraction of four "sixes" under a single administration. Closed ether was sometimes given for difficult extractions, and children always got a measured dose of ethyl chloride in a bag. It was sometimes very alarming.

The most recent alterations and extensions which produced the buildings that you all know, were completed in 1926. A bacon factory, known and execrated by all old Guy's dental men, the site of which belonged to the Governors, was pulled down and the probationary room, the northern extensions of the prosthetic laboratory, with the children's department, clinical and demonstration rooms on the second floor, took its place.

On the ground floor that part of the probationary room at present free from equipment was the carpenter's shop of the works department. The main staircase begins in what was an open arch leading to the works department, and a small amount of laboratory and conservation-room space was sacrificed to its completion. The entrance hall, with the office of the Director of the Prosthetic Department above it, was built out in front of the arch, and the X-ray Department was completely remade on the site of the office of the works department. The old and mean staircase was dismantled. Its entrance is now the almoner's office, and the top landing in the Conservation Room is now Sisters' sitting-room.

The mention of Sister Dental brings me to another of the most important changes that have taken place in my time at Guy's, and that is the appointment of a Sister in charge of the Dental Department. This appointment has made possible the large number of operations about the mouth that are carried out under local anæsthesia in the best possible environment. The responsibility for the Conservation Room and Clinical Rooms is very great, and by now there must be some hundreds of Guy's men in practice who have learnt the rudiments of surgical cleanliness under her example.

A full account of the origin and subsequent history of the Dental School was written by Mr. F. J. Pearce, and published in the Bi-centenary number of the *Gazette* in 1925, and I have drawn very freely on this account for some of the material for this address. I would strongly recommend this number of the *Gazette* to you all for a most illuminating account of the activities of the Hospital in all its departments.

I fear these observations of mine have been overlong and very disjointed, and even now I think I have omitted much that might have been of interest. I feel also that I have allowed my personal opinions to bias many of my observations, and for these I offer my regrets.

Panel Practice

DR. DOUTHWAITE has recently given an excellent lecture on General Practice, in which he said that he had no experience of Panel work. As, I believe, about one-third of the population of England comes under the National Health Insurance Scheme, it follows that most men going into general practice (at any rate when they are starting) will have Panel patients, and the purpose of this article is to give some idea of what they will be up against.

Mr. Punch's advice to those about to get married—" Don't ! "—applies equally well to those about to embark in the ordinary type of mixed practice, and the heartfelt advice of one disillusioned general practitioner is : " Try to get a job in the Services or in some institution, and then you may have an hour or two a day in which to cultivate some interest other than that of attending trivial complaints. Failing this, do one or two *long* " locums " in order to get a real idea of what the life is like."

In Panel practice one is paid a fixed sum (at present about eight shillings) per annum for every patient on one's permanent list. This is paid quarterly, at the rate of two shillings, from which is deducted certain small charges for administrative purposes, etc. In addition to these fees, arrangements are made whereby temporary residents may obtain treatment from any doctor they select, and the doctor is paid in the ratio of 4 : 1 ; that is, he is paid eight shillings a quarter for them. The reason for this is that if a temporary resident wants treatment it is hardly fair to expect it to be given at the rate of two shillings a quarter when one does not have the benefit of his healthy periods (if any).

Now the advantages of the system come under four heads :—

1. Your cheque comes in each quarter without the slightest effort on your part to collect the amount of bills. A very comforting thought.

2. A large number of people are included in the scheme who are too poor to pay any fee, but who would have to be attended. (You will be called in to their relatives, and will be able to test the truth of this.)

3. You can get all the drugs and appliances that a reasonable man can want for a serious illness without worrying about the patient's ability to get them. Many patients who can afford, say, half-a-crown or three and sixpence cannot, in addition, pay a chemist's bill, and if one is doling out quantities of bismuth, dressings, hypnotics, etc., inclusive in a low fee, one's profits can be cut in a remarkable manner.

4. A Panel is a very saleable article. About 80 per cent. will stay with the new man, and this is well known to purchasers and sellers alike.

The disadvantages are as follows :—

1. First and foremost, that this system brings medical attention within the reach of every neurotic and hypochondriac who is eligible for benefit—and their name is legion. The most frequently heard words in my consulting-room are, " My nerves are bad and I want a tonic " (or, " a good rest and doctoring up ").

2. An ever-increasing number of people are absolutely ceasing to think for themselves in regard to trivial ailments. Their attitude is summed up in the words, " I pay for it and I may as well have it," and in they come to consult you about slight colds, minute injuries, to ask if they ought to go to a dentist, and many other absurd things. As a direct result of these two categories one has to hurry through every surgery and the genuine patients suffer for it, thus laying the doctor open to the many accusations which are levelled against him, such as : " Only one of his Panel patients " ; " I don't want to be treated as a Panel patient, I am willing to pay," etc.

I once tried the experiment of weeding out those whom I thought were seriously ill and seeing them at their houses or in some of my scanty spare time. Not for long, however, as they at once took advantage of this and either sent for me when they next got a day's constipation or rolled up out of hours.

3. As one cannot apply Dr. Douthwaite's advice, " Charge such a patient quadruple your usual fee," they do not hesitate to call on you or send for you at all hours of the day and night. A call at 1 a.m. to see a hysterical navvy overcome by a song about " Mother and the Roses round the Door " is an example which, alas, is not as far-fetched as it sounds. Of course, there is a lovely set of rules which the patients are supposed to observe, and which is designed to prevent these abuses, but, needless to say, they are not worth the paper they are printed on.

4. As the majority of insured persons are also eligible for sick benefit when they are ill there is always keen desire to " go on the Panel " by a number of work-shy people, and very unpleasant it is sometimes to try to do one's duty and turn them down. I have even had to report a case to the local Panel Committee for the astounding things she said to me when I told her that she was quite fit for work. Recently, as was reported in the press, the Friendly Societies and others made an attack on the doctors and accused them of

excessive and improper certification, and new mechanism has been put into force for "catching out" the doctor and penalising him heavily. Thus the Panel practitioner is ground between the stones.

5. Not only are one's certificates questioned, but other details are scrutinised. An inspector, called the Regional Medical Officer, comes round at intervals and looks through the Panel record cards and there are slaps for the doctor (and fines if need be) if the clinical notes are not frequent enough to pass muster, or if attendances and visits have not been noted on the cards.

Taking the advantages with the disadvantages, I am of the opinion that advantage 1 out-weighs all others—at any rate these days. How much the lump sum works out at per visit and attendance depends enormously on the class of practice. In a residential town I calculate it to work out at about 2*s*. 9*d*. a visit and 1*s*. a consultation. I believe the Ministry of Health figures for the whole country are a good bit less, so what it must be like in big, unhealthy industrial cities I hate to think.

To the man fresh from hospital the whole of the financial side is rather abhorrent. He has been used to doing a good deal for nothing, and would in most cases prefer to have the practice of medicine and its rewards kept quite separate; a couple of quarters' bills for a house and its upkeep will soon give him a very different view, and perhaps he will agree that the certain financial return (however inadequate for the hours worked) is a valuable asset to attaining peace of mind.

MIXED-PRACTICE G.P.

The Physical Society

A MEETING of the Physical Society was held in the College Smoking Room on Thursday, November 26th. Mr. Colbeck was in the Chair. There was a large attendance and many interesting cases were shown, which provoked lively discussions.

Mr. B. MCARDLE described the case of a lady who for eight years had had albuminuria, slight œdema of the ankles and no constitutional symptoms. Her urine contained 2 parts per 1,000 of albumen, hyaline and granular casts, and a few red blood cells. Mr. McArdle pointed out that the diagnosis lay between nephritis, nephrosis and focal nephritis. As there was no history of an acute attack, no rise in blood pressure, and no increase in blood urea, he considered that nephritis was ruled out. The presence of red blood cells excluded the diagnosis of nephrosis. The correct diagnosis, he thought, was that of focal nephritis.

The patient eventually became pregnant, and her œdema now increased. A furious discussion ensued as to whether she should be allowed to go to full term or be induced. Mr. McArdle considered that, if there was no increase in blood pressure and no signs of azotæmia, she should be allowed to continue. Mr. Wright pointed out the ethical objections to induction. Mr. Rosenberg pictured a disastrous and sudden termination if the pregnancy was allowed to continue. Mr. Dingemans advised immediate induction, rather than a dead baby and damaged kidneys.

It was eventually agreed that the pregnancy should be allowed to continue, but that a careful watch should be kept for any rise in blood pressure or signs of azotæmia, when induction should be performed.

Mr. WONG told the story of a middle-aged man who, one month before admission, suddenly developed an attack of paroxysmal tachycardia following a heavy meal. He subsequently had several attacks, each lasting 12 to 24 hours, and starting and ending suddenly. There was slight loss of weight and few physical signs, except a very large heart. An electrocardiogram showed that the attacks consisted of paroxysmal auricular fibrillation. Mr. Wong asked the meeting to give some reason for this state of affairs.

After some discussion between Mr. J. McArdle, and Mr. Wong as to the difference between paroxysmal auricular fibrillation and paroxysmal tachycardia, Mr. Elvin pointed out that the patient had an adenoma of his thyroid, which he considered was toxic and the cause of his cardiac derangement. Subsequent speakers agreed with this diagnosis, and a discussion followed as to the correct line of treatment. Mr. McArdle suggested giving quinidine, with a view to controlling the attacks. It was finally agreed, however, that if the diagnosis of toxic adenoma was correct, the assistance of the surgeon should be sought.

Mr. RATCLIFFE described the case of a man who, following dysentery in 1915, developed a swelling on his tibia in 1917. This swelling developed in size, and, as the result of a trivial accident, he fractured the bone. An X-ray showed a cyst with a fracture through it. Various diagnoses were advanced as to the nature of the cyst. Mr. Taylor suggested that the patient had typhoid in 1915, and that the cyst was of this origin. Mr. Elvin suggested myeloma or osteo-clastoma. Mr. Colbeck thought that it might be a xanthoma, and asked, "What are osteo-clasts, anyway?" Mr.

McArdle put forward fibro-cystic disease. Following a heated discussion, the eventual diagnosis was not satisfactorily agreed upon.

Mr. J. McARDLE asked for a diagnosis in a case with a sessile swelling in the frontal region and peculiar X-ray appearances in the skull. The X-ray report was ". . . a spreading rarefaction and destruction of the right parietal bone, by an infection, probably pyogenic or tubercular." An opaque right frontal sinus was also seen.

Various diagnoses were advanced. That of chronic osteomyelitis was suggested by the opaque right frontal sinus. A negative Wasserman reaction rather discounted the diagnosis of diffuse gummatous osteitis. Osteitis fibrosa was favoured by many. A somewhat desultory discussion did not provide the meeting with a satisfactory diagnosis, and the true nature of the case remained shrouded in mystery.

Mr. WASS briefly described the history of a patient who had had small repeated hæmoptyses extending over a period of seven days. During this time he had also suffered from insomnia, anorexia and vertigo. On examination there were no physical signs in the chest except a few rales at the left base, and an X-ray was negative. He asked for a diagnosis.

An astute clinician pointed out that the patient had well-marked mitral stenosis. He explained that this was undoubtedly the cause of the hæmoptyses, an explanation which the meeting accepted without further discussion.

Mr. CROWTHER-SMITH described the case of a man who, following recovery from malaria in 1924, commenced to have periodic epileptiform convulsions. An examination of his nervous system revealed an extensor plantar response on the right side. An X-ray of his skull showed many small discrete opacities scattered throughout the cerebrum and cerebellum.

Mr. Taylor thought that these were malarial foci which had become calcified. Mr. Colbeck suggested diffuse endotheliomata of the cerebrum with calcification. Other diagnoses suggested were calcified miliary tubercules and tænia cysticercus. The meeting was not successful, however, in arriving at a satisfactory conclusion.

Mr. WRIGHT told the complicated story of a woman, aged 50, who gave a 10-months' history of headache, loss of weight, poor appetite and hyperæsthesia of the scalp. Examination showed a high blood pressure, a large liver and spleen, and ulcers of the hard palate. There were tumours on the skull and diffuse swelling of the distal ends of both radii and of the shaft of one tibia. Following medicinal treatment, these subsided.

Mr. Rosenberg at once diagnosed syphilis. Mr. Taylor made a noble effort towards the discussion by suggesting that the swellings were sarcomatous. Mr. Crowther-Smith backed him up with multiple myelomata. The rather one-sided argument was concluded when it was revealed that the Wasserman Reaction was positive.

Correspondence

Simplified Diagnoses

To the Editor of the GAZETTE

SIR,—I am indebted to a friend who commands a Brigade in North India for the following sidelight on medical life in India. It consists of a draft brigade order submitted to my friend for approval by the sorely-tried commander of one of his battalions :—

" Headquarters,
" Xth (Slumpanagar) Infantry Brigade,
" Slumpanagar.

" It is requested that the medical authorities refrain from using obscure medical terms when noting down identification marks on enrolment forms, pension claims, etc.

" For instance : ' Lymphangioma of left helix, antihelix, tragus and antitragus ' would be more easily understood by the average infantry (cavalry, artillery, etc.) officer if simply noted as ' thick ear (left).' "

Yours, etc.,
J. B. H.

Sweets and Dentistry

To the Editor of the GAZETTE

SIR,—The Dental Department of our Hospital, with which is associated the Dental School—by common consent, I believe, the premier seat of dental learning in this country—has recently received a series of rude shocks.

Despite the teaching of dental surgeons for years past that sticky carbohydrate foods, particularly when taken between proper meals, are abhorrent in that they are extremely productive of dental decay, yet we awakened one morning to find a baby on our doorstep in the form of a

Salmon and Gluckstein—J. Lyons—Rimmel affair wherein the most ghastly sweetmeats are for sale. It has even been suggested by one in authority that glutinous carbohydrate masses, to wit, small cakes made in the Nurses' Home (I wish to cast no aspersions upon the excellent cooking of that venerable edifice), should be offered for sale (not, we hope, for return).

All this is, perhaps, pardonable, although I hasten to refute any suggestion that the Dental School is paying a subsidy to the Guy's Shop in the hope of reaping an increased return because of the resultant increase of decay in the teeth of the Borough.

But, alas! we have now had twins laid almost inside our doors. I refer shamefacedly to the penny-in-the-slot chocolate machines now installed in the Surgery and Out-patients' Department, the very portals through which our patients reach us. No longer, I fear, will these simple trusting creatures repose their faith in us when we suggest that boiled sweets only should be taken into their faces.

Anonymity, Sir, is a disgrace to the writer, and therefore I beg respectfully to sign my name in full, with apologies for taking up your valuable space.

Yours, etc.,
(Signed) H. H. KENSHOLE.

Nursing News

DIPLOMA IN NURSING

London University

WE have much pleasure in offering our heartiest congratulations to Miss D. I. Henderson (Sister Kitchens), who has obtained this Diploma in Hospital Administration. Also Miss F. Taylor has successfully passed an additional section of the Examination in Methods of Teaching and Educational Psychology. These London University Examinations are the highest and most coveted qualifications to be obtained in the nursing profession, so we are delighted that Guy's nurses each year are entering for them.

STATE EXAMINATIONS

During the present year 85 third-year nurses have entered for the Final Examination, and of these all except three were successful the first time of entry; 60 second-year nurses have entered for the Preliminary Examination, and all of these passed.

The following nurses were successful at the October Final Examination, and their names have been entered on the State Register :—

Angier, E.
Barber, S.
Blair, K.
Creagh, M.
Cousins, G.
Clark, F. L.
Dunning, M. G.
Edmunds, M.
Evans, M. E.
Francké, D.
Fuller, G. C.
Gillett, V.
Glanville, A.
Griffiths, S. E. H.
Hall, M. R.
Harrison, D.
Haines, A. B.
Jayne, E. M.
King, H.
Knowles, J.
Llewellyn, M.
Low, E. M. R.
Moss, O.
Lord, B.
Powell, R.
Rigg, H.
Temple, G.
Wright, Doris
Wright, Dorothy
Ward, E. E.
Wood, D.
White, A. M.
Whiteman, A.
Williams, M.

THE DEBATING SOCIETY

The unkind critic who first remarked, "Woman, generally speaking, is generally speaking," would have rejoiced to feel his statement supported had he visited the Nurses' Home on Tuesday, December 1st, when the Debating Society held another successful meeting.

A large gathering of nurses was presided over by Miss Opie (Sister Evelyn), and the Society was honoured by the support of the President, Miss MacManus, the Matron, as well as several Sisters and staff nurses.

The subject, that "The world does not progress, it merely changes," was proposed and seconded by Nurse Scales and Nurse Hains respectively, and opposed by Nurse Roseveare and Nurse Salton. The proposers maintained that the world only moves in cycles, and that the world of to-day finds itself neither greater nor better than it was during ancient civilisation. Progress, they held, was only a delusion in the mind of the individual to give him motive; in the world as a whole there is no such thing as progress—there is only change.

The opposers in their reply traced the evolution of the human race from the primitive cave-man, ruled entirely by his instincts, to the modern man of culture, with a body the servant of his mind, who realises that he is a member of a community and is capable of idealism and sacrifice. This, they claimed, was a proof that the world does progress.

Although at first sight the subject under debate appeared to be a somewhat heavy one, these speeches provoked many remarks both for and against the motion, and illustrations were drawn from the realms of religion, biology, history, architecture, literature and medicine. One nurse as a proof of progress gave a lurid account of the gruesome treatment meted out to King Charles II on his death-bed, comparing it with modern

humane methods. In reply, another member stated that actually there is little difference between the ancient witch doctor with his herbal concoctions and the modern physician with his sera and vaccines—in either case the patient may or may not be cured !

The discussion was only closed owing to the lateness of the hour, and when a general vote was taken the opinion of the meeting, which at first had appeared to be in favour of the motion, proved to be in agreement with progress, and the motion was lost by 35 votes to 20.

Reviews

Robert and Clive—The Story of a Surgeon. By CLAIR COPE. Published by Messrs. John Bale, Sons & Danielsson, Ltd. *Price* 3*s.* 6*d.*

THE stories in this book reveal the intimate and personal contact which every doctor has with his patients. They show that the responsibilities of the doctor do not end with the treatment of the case, but that the personal problems of his patients also very frequently become his concern. These short sketches, told with a rare sense of humour and much human insight, should prove of absorbing interest both to the lay public and to the medical profession.

Handbook of Medicine for Final-Year Students. By G. F. WALKER, M.D. (Leeds), M.R.C.P. (Lond.). Published by Messrs. John Bale, Sons & Danielsson, Ltd *Price* 10*s.* 6*d.*

A CONCISE and interestingly written handbook, chiefly, but by no means exclusively, for the help of the final-year student of medicine and the newly-qualified practitioner, who will appreciate the author's method of leading them along the paths of clinical diagnosis in an original and helpful manner.

Special attention is paid to the topics on which the student should concentrate in his preparation for the final examinations, and also to the fact that diagnosis should be made upon clinical evidence, and then confirmed rather than arrived at by laboratory methods.

The greater part of the writing is thus centred around what the author aptly calls the keystone of medicine—diagnosis—but the chapter on the study of treatment will be found illuminating and stimulating to the student who has, perhaps, been rather weighed down with the text-book methods of treatment.

This little book will, no doubt, become increasingly popular as it becomes known, and will be found useful by many medical men in different circumstances as a concise aid to diagnosis.

Manual of General Medical Practice. By W. STANLEY SYKES, M.A., M.B., D.P.H. 2nd Edition. Published by Messrs. H. K. Lewis & Co., Ltd.

THE appearance of a second edition of this handbook is welcome to those of us who do not come of a medical family, and who, intending to enter general practice, verge unprepared on the great unknown.

Throughout the volume the author has presented his viewpoint in a concise and lucid manner and with that fine regard for proportion which the urgent habits of a busy general practitioner cannot fail to mature.

The chapter entitled " Midwifery " is worthy of the attention both of obstetricians and of final-year students, while that on Anæsthetics is a revelation to those of us who, as general practitioners, would ordinarily employ open ether as the universal anæsthetic. On the other hand, the author does not dwell on that still dark chapter of medical practice—deaths under anæsthesia.

The author's opinion on the relative amounts of time demanded by the curriculum to be spent in the study of clinical medicine, surgery and its sidelines, and of the diseases of women, children and midwifery would be interesting, and his estimate of their values to the young practitioner instructive.

Sport

Rugby

Guy's v. United Services (Portsmouth)

THE return match with the United Services was played at Honor Oak Park on Wednesday, November 18th, under most depressing conditions, as it rained incessantly throughout the day. The kick-off was delayed through the non-arrival of Lieut. T. S. Lee, who did not take the field until the game had been in progress some few minutes.

The Services brought a strong team to avenge their defeat earlier in the season, whereas Guy's owing to injuries lacked the assistance of Johnson and Drummond.

It was mainly due to the excellent work of the pack that enabled our visitors to defeat the Hospital by a dropped goal and 3 tries (13 points) to a placed goal (5 points). The efforts of Lieuts. Forrest, Casement and Falla were outstanding; although Guy's held their own in the set scrummages, they had nobody to compare with these hardy warriors in the line-outs and loose.

In spite of the fact that rain had rendered the turf soft and treacherous, the play, although mainly confined to the forwards, was surprisingly brisk. The greasy ball made handling very difficult, and as a result a number of passes were fumbled on both sides.

In the set scrummages the Hospital forwards were excellent, standing up, as they did, to a heavier pack on a muddy ground. They obtained the ball exceedingly well, but this was due mainly to the fine hooking of O'Shea and the help he received from Batchelor, Robin and Cunard. In the loose, Morgan and Hogbin excelled, but it appeared that Guy's would be served better if one of these were nearer the throw-in instead of both being at the extreme end of a line-out.

A quarter of an hour after the kick-off Lieut. Elliot, the visitors' fly-half, secured the lead as the result of a fine dropped goal and, shortly afterwards, he cut through the Hospital defence to send in Benson for an unconverted try.

The Services increased their lead further when Lieut. G. C. Falla forced his way over the line following a five-yards scrummage.

Following the resumption, Guy's made repeated efforts to reduce the ten points deficit, but poor passing spoilt many promising movements which might have produced scoring opportunities.

To aggravate matters, Windsor Lewis had to leave the field with a damaged shoulder, but, curiously enough, the Hospital rallied, and, following a splendid run by Giesen, Alexander went over for a try, which Hogbin converted.

Guy's tried hard to get through, but the tackling of the Services was very sure, and no further score resulted until just before time, when Lieut. Reynolds forced his way over for a try, which was not converted.

Team.—W. B. Clegg; D. E. Ashdown, P. C. Alexander, J. E. Giesen, H. J. B. Atkins; W. H. Lewis, J. Howell; J. S. Batchelor, J. P. O'Shea, J. Cunard, I. G. Robin, L. I. S. Campbell, T. Morgan, R. A. P. Hogbin, A. R. Clarke.

Guy's v. Birkenhead Park

AT Honor Oak Park on Saturday, November 21st, Guy's entertained their old friends from Liverpool, and were well beaten by 5 tries (15 points) to a dropped goal (4 points).

As a game, there were very few thrills to arouse the spectators to any degree of enthusiasm, although the electrical runs of J. B. Charles on the visitors' left wing were a feature of the match.

Despite the fact that Guy's received the ball from practically every set-scrum, the Hospital backs failed lamentably to push home an advantage which they have not enjoyed so much in any game this season. To some extent this may be due to the erratic service from the base of the scrum, and in this particular game Howell was far from accurate with his passes, which invariably missed the stand-off half and found their way to one of the centres, when least expecting them.

The Hospital centres, who were particularly well marked, appeared to hang on to the ball far too long, and were invariably caught in possession. Had the ball been flung across the line a little more and had the wing threes been given greater opportunities, it is certain that there would have been a different story at the end of the game.

On the other hand, a word of praise must be given to the forwards and W. B. Clegg at full-back. The pack, ably led by J. S. Batchelor, stuck to their task magnificently, and J. P. O'Shea played his best game of the season; he improves in every game, and, provided the rest of the forwards give him the support that they did on this occasion, then Guy's need not worry about the hooking. O'Shea secured the ball from nearly every scrum, and although it hung about the back row in the earlier part of the game, this fault was overcome during the later stages.

W. B. Clegg played with greater confidence and kicked with excellent judgment. Both full-backs did exceptionally well, but Clegg, who had the most difficult task to perform, must be awarded the honours, if any comparison is necessary.

It was obvious that Guy's lacked the inspiration of their captain, W. H. Lewis, who was badly hurt in the match against the Services. Furthermore, Alexander, who has been playing particularly well of late, was unable to turn out on account of examinations.

The conditions were ideal when Birkenhead Park kicked off, although the ground was on the soft side, especially in front of the stand. The first incident was a nice dribble by O'Shea, but Cockle brought off a clever save, and soon after the visitors were penalised just outside their 25. Although Hogbin's kick at goal was straight, it just missed its objective, and the Park forwards rushed the ball to within a few yards of the goal line.

From a five-yards' scrum, our visitors had a slice of luck, when Gibson was allowed to pick up and cross our line for a try. It was an extra-

ordinary decision, as both teams appeared to be under the impression that the ball had passed through the scrum without anyone touching it.

Offside against the Park enabled Morgan to find touch in their 25, and after Giesen had been tackled, Brabner and J. B. Charles participated in some accurate passing, which resulted in the latter crossing the line, but he lost the ball in trying to touch down after a great tackle by Clegg.

Fichardt collected a punt ahead and passed to Johnson; the latter following a short run cross-kicked, but there was nobody up and Brigg cleared his lines. After Thomas had tried a drop at goal, Sherman managed to get away on the blind side of the scrum and started a splendid movement, which broke down a yard from the line when a forward pass spoilt a certain try.

Soon after F. W. B. Charles cut through the centre and caught the Guy's defence napping; when faced by Clegg he cross-kicked over the line and Walker just failed to touch down. The persistency of the visitors' backs was eventually rewarded when the ball, after passing along the whole three-quarter line, reached J. B. Charles. The latter took it in his stride and, showing exceptional pace, he eluded all opposition and scored in the corner.

After the interval, Guy's re-arranged their back division, when Fichardt and Thomas changed places. The alteration did not prove satisfactory, and there were several gaps in the defence which should have been covered.

Early on, Fichardt tried a punt forward and follow up, but the ball bounced awkwardly and the Park were able to get their backs going, and eventually Brabner found a gap between the centres. After drawing the defence he passed to J. B. Charles, and the latter scored another flying try, which was not improved upon.

Lack of confidence caused Guy's to make several mistakes when favourably placed, and Clegg did very well to find touch with a beautiful kick when harassed by the opposing pack.

Following a scrum which followed, Fichardt took careful aim and dropped a perfect goal. From the kick-off Fichardt, Thomas and Howell participated in a clever movement, but the latter was unable to get his pass to Ashdown and a good opportunity went astray.

Profiting by this "let-off," Birkenhead went out to make their position secure. A pass from Howell was not accepted by Fichardt, and the Park forwards carried the ball over the line for F. W. B. Charles to touch down near the posts, but again this was not converted.

Guy's all but scored a minute later when Fichardt compelled Brigg to carry over the line, but the visitors were able to clear and eventually Cockle scrambled over for a try in the corner.

Near the end Guy's made two or three fine efforts to get through, but the defence of the Park was very sound, and although it appeared that Morgan scored a perfectly legitimate try, the referee ordered a five-yards' scrum, which had no result.

Team.—W. B. Clegg; D. E. Ashdown, T. Fichardt, J. E. Giesen, A. G. Johnson; I. K. Thomas, J. Howell; J. S. Batchelor, J. P. O'Shea, J. Cunard, I. G. Robin, R. J. Drummond, R. A. P. Hogbin, A. R. Clarke, T. Morgan.

Fencing

Guy's v R.N.C.

ON Tuesday, December 1st, Guy's fought an away match against the Royal Naval College, winning easily by 8 defeats to 19.

Our sabreurs began the meeting well with a 7-2 victory. Although almost every assault was taken to the last hit, the result was never in doubt. Morris, who fought very successfully with all three weapons, was undefeated, and Wright and Irish each won two fights.

Some rather scrappy foil play ended in a win for the Hospital by 1 defeat to 8. Morris again won three times, and Wright, by the use of some judicious stop-hits, achieved an equal distinction. Forbes lost one bout.

The epée was much more closely contested, the odd fight going to the R.N.C. The duelling was enlivened by such attacks as "beat on floor, lunge at right big toe," and by the rending of nether garments. Morris suffered in this weapon his one defeat of the evening. Irish and Hodgkin were both rather unlucky, the former losing his last fight through an unfortunate lapse.

The evening which followed was even more enjoyable than the match.

Scores: Foil—Morris, 0 defeats; Wright, 0 defeats; Forbes, 1 defeat. Epée—Morris, 1 defeat; Irish, 2 defeats; Hodgkin, 2 defeats. Sabre—Morris, 0 defeats; Irish, 1 defeat; Wright, 1 defeat.

Sailing Club

AT the Annual General Meeting of the United Hospitals' Sailing Club, which is to be held at University College Hospital on Friday, December 18th, at 8.30 p.m., there are several important proposals down for discussion.

The Club has grown considerably in membership since 1925, when it was founded, and now draws its members from nine hospitals, to eight

of which boats have been allotted. The task of running the Club and looking after the property is now very heavy, and a revision of the rules and re-allocation of duties amongst the officers is being considered.

The racing side of the Club has been further developed, and, in addition to team-races against Thames clubs and against other Universities, teams are being sent to Berlin and Holland for international 12 square metre races.

Racing at Burnham during the 1931 season has been of a very high standard. The season's average turnout has been 6.5 out of a possible eight starters.

In the United Hospitals' Regatta in September the Guy's team showed considerable improvement on their recent performances, for bad luck has attended them since 1927, when they last won the Cup.

In the Wilson Cup, W. H. Bradbeer won his heat, but was unable to compete in the Final.

In the Sherren Cup races the Guy's team tied for second place with St. Mary's, Bart.'s winning easily.

In the morning race, over the Old Roach Course, D. Erskine took the first round, and, on handing over at the Brantlet Spit, was third to London and Bart.'s. G. W. Hall-Smith considerably reduced the distance between Guy's and London, and crossed the line about a minute behind the second boat.

In the afternoon G. B. Palmer took the start and crossed the line best, with Bart.'s and London turning just astern. The Mary's and U.C.H. boats started on the south shore of the river and (although theoretically doubtful!) managed to round the first mark ahead.

On taking over at the second round, F. J. Curtis easily maintained the position and gained considerably on the London boat astern, finishing third to Mary's and Bart.'s.

Results.

St. Bart.'s	16 points.
Guy's	12 ,,
St. Mary's	12 ,,
London	7 ,,
U.C.H.	4 ,,
St. Thomas's	3 ,,
St. George's	2 ,,
Middlesex	0 ,,

Hospital Information, etc.

Notice

GUY'S HOSPITAL MEDICAL SCHOOL
M.R.C.P. COURSE
February-March, 1932

A Course in preparation for the Examination for the Membership of the Royal College of Physicians of London will commence on Monday, February 1st, and will continue for a period of eight weeks. Fee for the Course, £21. A limited number of vacancies is available, and application for admission to the Course should be made immediately to the Dean, Guy's Hospital Medical School, London Bridge, S.E.1.

T. B. JOHNSTON, *Dean*.

Pass List

OXFORD UNIVERSITY.
DOCTOR OF MEDICINE.
J. R. B. Hern.

Papers by Guy's Men

P. N. B. Odgers. Circum-aortic venous rings. *J. Anat.*, 1931, lxvi, 98.

G. B. Palmer. Case of osteomyelitis of mandible with extensive necrosis. *Dent. Rec.*, 1931, li, 539.

T. T. Stamm. Constitution of ligamentum cruciatum cruris. *J. Anat.*, 1931, lxvi, 80.

A. H. Todd. Dr. Murk Jansen and his clinic at Leiden. *Brit. J. Surg.*, 1931, xix, 324.

R. C. Brock. Influence of respiration movements on formation and absorption of pleural fluids. *J. Thoracic Surg.*, Oct., 1931, Vol. i, No. 1.

A. V. Clarke. Treatment in pernicious anæmia. *B.M.J.*, 1931, ii, 895.

E. B. Dowsett. Operative procedure for cysts of jaws. *Proc. R.S.M.*, 1931, xxv, 47.

A. C. Hampson. Jaundice in childhood. *B.M.J.*, 1931, ii, 932.

E. G. Housden and A. Piggott. Spontaneous hæmopneumothorax with unusual post-mortem findings. *B.M.J.*, 1931, ii, 941.

R. O. Moon. Van Helmont—chemist, physician, philosopher and mystic. *Proc. R.S.M.*, 1931, xxv, 23.

Change of Address

J. W. Shackle, M.R.C.S., L.R.C.P., 71, Grosvenor Street, W.1. Mayfair 6080.

Professor C. S. Gibson, F.R.S., Greenaway, Warren Drive, Kingswood, Surrey. *Burgh Heath* 1412.

Death

DAVIS, C. (née Cook).—Beloved wife of Guy L. Davis, D.C.M., B.Sc., and dearly loved eldest daughter of Mr. and Mrs. N. Cook, Reading, at the home of her parents on November 9th, 1931. Aged 31. Served as V.A.D. in Reading, Salonika, and France, 1914 to 1921. Guy's Hospital, 1921 to 1924.

EDS. { J. S. B. / G. A. M. L.

GUY'S HOSPITAL GAZETTE

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PASSIM

ONCE again the Out-patient question in London voluntary hospitals is becoming prominent. Following a report by the Management Committee of the General Council of King Edward's Hospital Fund, the Prince of Wales, as President, has appointed a committee to inquire into the methods in use in the out-patient and casualty departments. The report by the Management Committee is centered around three vexed problems which are only too obvious to anyone who has worked in the departments.

The first problem concerns the length of time during which many patients have to wait. It is suggested that it might be possible to reduce this by changes in administrative methods. In any large hospital a certain amount of delay is unavoidable, but we feel that this could be curtailed by more careful attention to the second problem, that of overcrowding.

There is no doubt that many patients attend for whose treatment the services of a hospital are not necessary. The difficulty is, of course, to separate the sheep from the goats. In our own Out-patient Department the Lady Almoner sifts out those patients who on financial grounds are not eligible for treatment. Nevertheless, there remain many who, on medical grounds alone, do not require the services of a hospital. In this respect we at present rely largely on the intelligent co-operation of those general practitioners and others who send up cases for investigation and specialist treatment. At the Front Surgery we receive without question all and sundry, and feel that any restrictions here would minimise considerably the value of the appointments of junior and senior dresserships.

The third problem brought up by the Management Committee is the question whether these defects of overcrowding and delay could be minimised by the restriction of the use of the out-patient departments to cases of emergencies and to those requiring second opinions or specialist treatment. This is, of course, the ideal at which we aim, but the difficulty lies in deciding whether or not it is necessary for a given patient to obtain specialist investigation or treatment. The decision obviously remains with the general practitioner who sends the case up, and so, neglecting those patients who are not referred from this source, we feel that the essential solution of these problems lies for the most part outside the walls of the hospitals.

FEW of us will view the passing of this year with anything but feelings of relief mingled only with some misgivings as to what the future may hold in store. Undeniably 1931 has earned for itself the unenviable reputation of being the most dismal of post-war years. There is, however, justification for the belief that we have at long last touched bottom, and that, if not in the near future, yet at no very distant date, we shall once again be on the upward path to prosperity.

Less than six months ago, with conditions as they then were, it was patent that the country was fast approaching bankruptcy. The immediate reaction to this realisation was the widespread preaching of the doctrine of economy. At that time such words as crisis and depression were, very properly, to be heard on all sides. With the re-establishment of the country's financies on a sound basis there comes the necessity for a further review of the situation. There is the definite risk that the pendulum may swing too far in the reverse direction. The continuance of too rigid economy will inevitably lead to the stagnation of monetary circulation with its attendant evils. Thus the more recent dictum, "wise spending," is no mere empty slogan, but an essential part of national economy in its broadest sense.

At a time such as this there is a temptation for all of us, murmuring to ourselves some such trite phrase as "financial crisis," to curtail our expenditure to a degree unwarranted by actual circumstances, and without due thought of the consequences this so-called economy brings to other less fortunate folk.

Of necessity it is the luxuries of this life that must first feel the cold steel of the economy axe. It is no surprise, therefore, to find a vast decrease in the number of social gatherings hitherto held annually.

With these facts well in mind, the organisers of the Residents' Ball were faced with no easy problem in deciding whether or not it was to be held in the New Year. After due consideration and, we understand, the canvassing of opinions of numerous regular supporters, it was decided that this function should take place as usual. This wise decision will, we feel sure, receive endorsement in the support that will be forthcoming from past and present Guy's men.

Arrangements have been made for the dance to take place at the Grosvenor House, Park Lane, on Friday, January 22nd. Mrs. F. J. Steward has very kindly consented to act as hostess. We look forward with the utmost confidence to the presence of undiminished numbers and an evening up to the usual high standard of excellence.

▭

ON Tuesday, December 22nd, Bedford celebrated the centenary of William Hale-White—better known as "Mark Rutherford." There was a lunch, a few speeches, and then Sir William Hale-White, the eldest son of "Mark Rutherford," unveiled a tablet on the shop where his father was born. Brought up in an atmosphere of orthodox Calvinism, Hale-White soon became an ardent Nonconformist, and by his austere and simple prose he made for himself a definite place in English literature.

It is appropriate, therefore, that the celebration of this centenary should have been in the simple form that "Mark Rutherford" would have wished. This forms a pleasant association with the recent return to Guy's of Sir William Hale-White when, a few days ago, he delivered a lecture on the "Beginnings of Bright's Disease."

▭

WE regret to have to call attention to a mistake which occurred in "Passim" of the last issue of the *Gazette*. In describing the recent Residents' Dinner we said that Mr. R. Plummer was elected Vice-President for the ensuing term. This is incorrect, for it is Mr. J. B. Schofield who now holds that office. We would like to tender our sincere apologies to Mr. Schofield.

Thomas Guy: His Hospital and His Times

An Address given on December 4th, 1931, by Dr. John Fawcett.

THOMAS GUY was born in 1644 or 1645, in the reign of Charles I, and he died in 1724, so I want you to bear in mind that he lived through the time of the Commonwealth, the reigns of Charles II, James II, of William and Mary, and of Anne, and nearly to the end of the reign of George I—most stirring times in our national history.

The picture I show you on the screen is a reproduction of the only authentic portrait of Guy by Vanderbank, and it now hangs in the dining-room of the Superintendent's House.

It is difficult, if not impossible, for you to obtain a mental picture of Thomas Guy without having some conception of the times in which he lived and of his surroundings, both of which were in all probability important factors in disposing him to spend his spare time and his fortune in framing and achieving the philanthropic designs and aims which marked the whole course of his life.

From the time of the ambitious and masterful Henry VIII, who came to the throne in 1509 and who quarrelled with the Pope because the Pope refused to grant him a divorce from his first Queen, Katherine of Arragon, religion of one kind or another became more than ever before a disturbing and dominant element in politics and coloured intensely the lives and conditions of our people for the next 200 years. All through Henry's reign, and that of Mary and Elizabeth, of James I and Charles I, first one and then another religious sect was in the ascendant. In Cromwell's time the Puritans had their turn, until our people got sick and tired of their extremists and so welcomed Charles II to the throne.

Nevertheless, when James II succeeded, and with him the dread of the revival of Papal supremacy recurred, the majority of our people determined that this should not come to pass, and hence the peaceful Revolution by which James II was deposed and William of Orange and Mary were invited to the throne.

*This event, as Prof. George Trevelyan points out, was the result of a compromise or agreement between Whig and Tory, Churchman and Dissenter, and ultimately led to the Act of Settlement securing the Protestant succession and that no Pope nor other alien head should in future interfere with us. But behind the many religious and political intrigues and quarrels of these times we must remember that the mass of our people were imbued with a deep religious instinct quite outside mere sectarian differences. Hence when the

*See in connection with the following three paragraphs Prof. Trevelyan's book "England under Queen Anne—Blenheim."

compromise effected by William and Mary's succession ensued, philanthropy of various kinds became, as Prof. Trevelyan remarks, "an outlet for religious enthusiasm," and was one of the characteristic features of the Revolution and of the succeeding years under William and Mary, and Anne. In these reigns church schools and noncomformist schools were started, religious societies such as that for the Promotion of Christian Knowledge, a wider dissemination of bibles in the land, the founding of almshouses, and so on.

During this same period London was rapidly increasing in prosperity and had become a great commercial city, its river crowded with shipping and merchandise from all parts of the world. It was, too, the chief centre of literature, of fashion, and of government, as well as of trade.

But side by side with all its growing wealth lived the manual workers of this great city—the people who loaded and unloaded the ships and helped in the various trades. By them life was lived under disgraceful conditions, with gross over-crowding in totally insanitary dwellings, with no education, secular or religious, and no one to look after them or their interests in any direction —without, in fact, any trace of decent social life and with an appalling death-rate.

It was, then, in these circumstances of wealth and poverty side by side that Thomas Guy was born and lived his adult life. It was an age, as I have said, of great philanthropic endeavour, and to a man like Guy the contrasts of life no doubt appeared appallingly unjust, and discreditable to the country, and were important factors leading him into channels of social beneficence and service as his life's work, and ultimately to the founding of our great hospital which happily bears his name.

No doubt, too, the dismal and unhygienic conditions in which the poor lived at this time had been rendered worse by Henry VIII's policy of abolition of the monasteries and of confiscation of their property. There was no longer any body of people to take the place of these monastic hospitals, as we may call them, which, despite many abuses, had among other tasks played a great part in looking after the sick poor in our land. The State did nothing to supply the need which in part it was her place to fill. It is true that Henry VIII was induced, later, to set up five Royal hospitals from the proceeds of his confiscations, and among them to refound Rahere's hospital, while Edward VI refounded St. Thomas's, they being the only general hospitals open to the sick poor at this epoch.

Guy was said to be a man of humble aspect and rather melancholy countenance, and in this connection we can well believe the following story about him. One day when he was looking over one of the bridges, very possibly contemplating the wretched conditions under which the riverside labourers lived and the projects which he had in mind, and hence, perhaps expressing his sorrow in his face, he was accosted by a passer-by who apparently thought that Guy was meditating an act of self-destruction. He entreated Guy "not to let his misfortunes tempt him to commit any rash act," then, placing a guinea in Guy's hand, he rapidly walked off. Guy followed him, explained, while thanking the man for his generosity, that he was mistaken, and obtained the name and address of his would-be benefactor. Some years later Guy saw this man's name in the bankruptcy list, went to see him, reminded him of their former meeting and, finding that the bankruptcy was not due to the man's fault, Guy settled with the creditors, re-started him in his business which continued to prosper ever after.

Thomas Guy was born in Pritchard's Alley, Fair Street, Horselydown, within three-quarters of a mile of the hospital. His father was a lighterman and coalmonger in Southwark in Charles I's reign; he died when Thomas was eight years old. His mother then went back to Tamworth, her native place, and there Thomas was educated.

At 15 years of age Thomas was apprenticed to John Clarke the younger, a bookseller and bookbinder in Mercers' Hall Porch, Cheapside. Immediately after his period of apprenticeship and his admission as a Freeman of the Stationers' Company and of the City of London he set up for himself in a house at the corner of Cornhill and Lombard Street, where he lived all his life. Guy was a publisher as well as a bookseller, there being no distinct line of separation between these callings in those days.

He became a great dealer in bibles. The English bibles were badly printed on inferior paper, and Guy, therefore, started importing bibles from Holland of cheaper and superior type. This business, though remunerative, got him into trouble with the King's Printer, and ultimately he had to give it up. The grant of a licence for printing was limited to certain people in London and York and in the Universities of Oxford and Cambridge.

During the Commonwealth the Oxford printers had got into a very bad way financially, and the King's Printer took advantage of this to raise the price of bibles so that the poor people could not afford to buy them. Shortly afterwards the University got their presses working again, and Peter Parker and Thomas Guy became the University printers, they having invested a considerable sum of money in the business. Bibles, prayer books and psalms

printed by them are to be found in the British Museum, at Oxford and at Cambridge and at Canterbury, with the imprint of Thomas Guy upon them. This association with the University lasted about ten years, till 1691-92.

Guy made money in various other ways besides the printing and sale of bibles, one of which was by buying so-called seamen's tickets. It has been said that Guy obtained a large part of his fortune by taking advantage of the needs of the poor seamen, but this is quite untrue. In the reign of William and Mary and of Anne the pay of our soldiers and seamen was often in arrear. Payment was deferred for years. The seamen were given the tickets in question, and, consequent on failure to redeem them, the sailors often sold their tickets at 30 to 50 per cent. below their face value. Obviously it was a speculative risk to buy these tickets, which, no doubt, had a more or less fixed market price, but there was no more wrong in doing so than if you or I had bought some of the present War Loans when they were at a low price with the chance that the loans might be repudiated or diminished in value had the result of the war been other than it was.

Then in 1710, when the national debt had risen to millions, an Act of Parliament was passed and the South Sea Company was formed to try and pay off the debt. The creditors of the Government had the option of subscribing to the company, and Guy put the securities represented by the seamen's tickets, and probably other Government securities, into it. About 1720, and later, when the stock rose enormously in value, he, like a prudent man, sold his stock by degrees and so realised the large sum which he devoted in the main to the building and the endowment of his hospital.

Guy was undoubtedly a very rich man, possessing, in his latter years, about £330,000. He has been described as a miser, but, if frugal as regards his own comfort, yet his generosity was magnificent and, as the quaint inscription at the base of his tomb in our chapel records, it "rivalled the endowment of kings." In fact, as Wilks and Bettany write in their history of Guy's, "the chief design of our founder in getting money seems to have been with a view of employing the same in good works."

The records of Guy's life prove him to have been a public benefactor throughout. As early as his thirty-third year we learn of help given to his old master and school at Tamworth, and then of the founding of an almshouse first for six or seven poor women and, shortly after, for a like number of men. Later, he built there a town hall. Guy was M.P. for Tamworth for a long time, but in 1707, when he was 62 years old, he was rejected, despite his many services to the town and his promise to the electors that, if they supported him, he would leave the town his fortune.

Guy always thought he had been shabbily treated at Tamworth, and he not only deprived the inhabitants of the advantages of the almshouses, but he threatened to pull down the town hall which he had built.

Now we must go back a few years to the time when he became interested in St. Thomas's Hospital, to which very probably he was attracted by its propinquity to his birthplace in Tooley Street. He was elected a Governor in 1704, and to this hospital he made many benefactions, including the building of three wards and a gift of £100 a year to help the poor patients in their convalescence before returning to their work. In 1724 he had erected a new entrance with iron gates and stone piers facing on the Borough High Street, he having previously improved the old stone front of the building and built two brick houses on the "toft" of the old gateway.

But, interested as Guy was in St. Thomas's, he wanted to build a hospital of his own, and therefore, in 1721, when 76 years of age, the Governors of St. Thomas's granted "their worthy governor and benefactor" a lease of the land on which part of the present hospital stands. The remainder of his life Guy spent in superintending the development of his great hospital. In "The Dean's Dilemma," the title of the amusing Residents' Play in 1908, in which the statue of Thomas Guy is brought to life, Guy got even more credit than was his due! Here one of the characters discussing him remarked: "Well, comes to that, they do say as 'ow he built two 'orspitals—Thomas's and St. Guy's; that's w'y they call 'im Thomas Guy."

The building was started in the spring of 1722 and proceeded apace, but, unhappily, Guy died on December 27, 1724, in the 80th year of his age, and so he was not privileged to see the opening of his hospital, which took place on January 6th, 1726, when 60 patients were admitted.

In his will Guy left large sums to his many relations, including estates and annuities to the tune of £63,000 in all. He also left other large bequests, and among them an annuity of £400 to Christ's Hospital and a bequest for relieving poor prisoners from debt, some 600 of them being thereby set at liberty.

The residue of his estate, £220,000, was left by him for the building and endowment of his hospital; the total cost of the building was £18,793 16*s.* 1*d.*, and the rest of the money was mostly invested in land in Essex, Herefordshire and Lincolnshire.

Another piece of land in front of the hospital was leased by the Governors from St. Thomas's in 1739 because accommodation for administrative and other purposes was insufficient, and on this part the brass statue of Guy by Scheymaker was erected. The eastern wing of the quadrangle was soon finished, and later the western wing with the chapel. The central facade was remodelled and the statues by Bacon of Æsculapius and Hygeia were placed on the front as you see them to-day. This work was completed by 1780, and also the monument of Guy by Bacon in the chapel. Later on, the spaces between the pillars and arches under the surgical buildings were filled in, and so the present Dorcas and Martha Wards were formed.

Somewhere about this time John Howard visited Guy's. He found that some of the wards were too low and he condemned the wooden bedsteads as harbourers of bugs, but he praised the new wards with their iron beds and their system of ventilation and sanitation. At this time a bug-catcher was employed by the hospital at £40 a year.

From now until nearly the end of the 19th century Guy's continued to thrive and prosper, and the man above all others to whom this creditable state was largely due was Benjamin Harrison the younger, who was appointed Treasurer in 1797 at the early age of 26 years. He lived, like many other treasurers, in the house now occupied by our Superintendent, Mr. Eason. He was in office for 50 years. He was a beneficent despot, supreme in everything, appointing the medical staff and the nurses, directing and supervising everything to do with the place. No wonder, then that he was called "King Harrison." All his work was gratuitous. He bought land near the hospital, and often advanced large sums out of his own pocket. His object in life was to do all he could to render the name of Thomas Guy and his hospital famous throughout the land, and he also founded our great medical school. Besides the founding of the separate Guy's school, the other great landmark of his rule was his friendship with William Hunt, who left the large sum of £180,000 to the hospital to build the "medical" block—called, as you know, Hunt's House.

William Hunt is buried in the vault of the chapel by the side of Guy, and there also Sir Astley Cooper is buried.

For 160 years after Guy's was opened no subscriptions were asked for, but in the agricultural depression of the 'seventies the income fell off so much that the hospital got into debt and wards were closed. In 1886 the first appeal for funds was made and £116,000 was collected, but in the ensuing ten years the income continued to fall, and the hospital again was in a serious position financially.

Then in 1896 Mr. Cosmo Bonsor, or, as he later became, Sir Cosmo Bonsor, was appointed Treasurer, and to him we at Guy's owe a debt which we can never repay. His term of office may, as Sir William Hale-White has said, be looked upon as the third cycle in the life history of Guy's—the first that of Thomas Guy, then "King Harrison" and William Hunt, and the third period of Sir Cosmo Bonsor's Treasurership. Mr. Bonsor spent every bit of his spare time in and for Guy's. There was hardly a day that we did not see him about the place, and often more than once. Everyone knew him—staff, students and nurses—and he seemed to know everyone. It would take me all my time to tell you of all he meant to us, and if ever a man was repaid, in however small a way, for all his work by the esteem and affection of everyone connected with Guy's during his term of office, he was that man. We who knew him will never forget him, and we are truly grateful for the day in which he accepted the post of Treasurer. We may congratulate ourselves in that we have his son, Sir Reginald Bonsor, as one of our present Governors.

At this time, not only was the financial position of Guy's serious from the falling off of income, but the great advances in medicine and surgery rendered the cost of maintenance far larger than formerly. Under the presidency of H.R.H. the Prince of Wales, later King Edward VII, a re-endowment fund was inaugurated, and £114,347 was collected at a dinner at which the Prince took the chair, and gradually the whole sum of £500,000 asked for was obtained.

Had it not been for the war, which brought about an enormous increase in the cost of administration and maintenance, we should have remained solvent. Now, as you may know, we are in debt once more. Nevertheless, in the period of 35 years since 1896 great improvements and additions have been made, *e.g.*, the central station for lighting and heating, the laundry, the re-flooring of the wards, the building of balconies, the massage department, the Nurses' Home, the great enlargement of the dental department, and now the new out-patient department, with many other smaller improvements.

MEDICAL SCHOOL

Although our school was not started as a separate institution until 1825, yet teaching had been carried on throughout by the physicians and surgeons, the students being known as pupils, dressers and apprentices. There was an arrangement with our then neighbours St. Thomas's

Hospital so that the students might attend the practice of both hospitals. In 1768 an agreement was made between the two hospitals whereby the students should see the surgical practice of both, and the name "United" or "Borough Hospitals" came into use.

About 1824 differences arose between the Governors and the lecturers of the two hospitals, in one of which Sir Astley Cooper was intimately concerned, but I do not propose to enter into the details of these differences to-day. Suffice it to say that, as a result, Mr. Benjamin Harrison determined to found a school of his own, which was opened in 1825. The two schools were, therefore, now separate institutions, although the privilege of the pupils to attend the practice of both hospitals was continued for a time. But in 1836 came the final break in the following way. A notice was posted at St. Thomas's of three operations; a crowd of students crossed the road; the porter demanded their tickets, and those without them were refused admission. Then two dressers from Guy's wished to exercise their right to stand within the operating area, but the St. Thomas's dressers objected. The result, I gather, was a row, which the surgeons were unable to cope with and stop; operations were suspended for the day, the police were called, and nine Guy's men taken to the police station. It seems hard that our men alone had to suffer the rigour of the law, but I think it clearly meant that the reputation of Guy's men for keeping their own end up was as good then as now. Whether they inflicted much damage upon our old friends and opponents at St. Thomas's is not recorded, although they appear to have been marked out specially by the officers of the law.

Then the authorities took sides, and in April, 1837, the staff of Guy's held a meeting and passed the following resolution: "We, the undersigned officers and teachers in the school of Guy's Hospital hereby assure the gentlemen composing the classes of our sense of the great attention and uniformity of conduct evinced by them on all occasions, and express our unqualified opinion, notwithstanding the late untoward circumstance, that nothing has occurred to deprive them of our confidence and regard." The famous clergyman, Frederick Denison Maurice, chaplain to Guy's at the time, also wrote a testimonial to the effect that "As Chaplain of Guy's Hospital I have read lectures to as many of the students of the Medical School as had leisure and inclination to attend, and have uniformly received from them the most respectful attention. I have also had opportunities of observing the deportment of the students generally, which has always seemed to me most becoming and orderly."

The final result of these little altercations was the formation of a firm bond of friendship between the two hospitals, which holds to the present day. The name "United Hospitals" still lives as that of the Club founded in 1828 and composed of men from both schools, with the object, as Mr. Golding-Bird wrote in his history of the Club, "to keep alive the traditions of the past . . . and to prevent the extinction of the brotherhood that had existed for a century between the neighbouring hospitals of St. Thomas's and Guy's."

NURSING

There was no training nor organisation of the nursing profession as we know it to-day until somewhere about the late 'seventies. In our Guy's *Gazette* of 1877 is a paragraph that "until very recently it was the commonest thing to see the nurse scrubbing the floor, and it seemed unreasonable to call her away to assist with a dressing." The editor remarked that he was glad to hear there were to be regularly paid scrubbers in future. The nurses were then described as a "rough and stout type," and even as late as 1876 some were unable to read or write, but whether this description applied to the nurses here I am not clear.

When I came to Guy's in 1885, and for some years before, the Sisters were mainly, if not altogether, chosen from so-called lady pupils who paid for their special intensive training of one year's duration, and who wore a special dress. A little later, owing to the institution of the three-years' period of training and to the improvement in social standing and education of nurses, the lady pupils as a special class disappeared. The training of nurses was then stabilised much on the lines of the present day, with, of course, the great improvements gradually made of recent years, although there still remains much to be done in some hospitals in regard to shorter hours, improved accommodation and increased facilities in teaching and equipment.

1879 may be roughly set down as the crucial year in the improvements at Guy's, when a serious difference of opinion arose between the Governors, the staff and the nurses, a difference which became widely discussed outside Guy's and did us harm for a short period. The Treasurer of that time and the Matron introduced a new scheme of nursing to which some of the medical staff and of the nurses were opposed, with the result of a very unhappy, but fortunately temporary, split between the Governors and some of the staff, the scheme having been introduced without their knowledge. However, the Governors stuck to their

guns, determined to govern the hospital and maintain the powers conferred upon them by Act of Parliament, and some members of the staff were requested to resign, after which matters settled down and what was undoubtedly a great advance in the scheme of training was initiated, and gradually enlarged until the present day.

In the early days of nursing nurses had many anomalous duties to perform. Thus, in addition to washing the patients and attending to the doctors, they had to scrub and clean beds and floors, and to assist them they might call upon the patients who were fit to help. Also to attend the butler at the ringing of the beer bell, and to see that the patients who carried the beer did not drink it *en route*; the same also at the ringing of the bread bell and of the cook's bell.

Certain payments, which sound very strange to us in these days, were made to the Matron and to the nurses for special services. Thus, for example, there were " buriall charges " as follows :

Shroud.—The Matron, 1*s*.

Laying-out.—The Sister and nurse, 1*s*.

Cloth pall.—The Steward, 1*s*.

Velvet pall, if anyone was so extravagant, 5*s*.

Apparently the nurses in the first half of the 18th century were not above embezzling provisions and following other undignified and culpable pursuits, as recorded in the Minutes of the Court of Committees. But we must remember the social and educational status of nurses 200 years ago, and also, although delinquencies of these kinds occurred, yet that there is no doubt they were exceptional, and that there were many motherly and self-sacrificing women among them who carried out their duties to the patients in the kindly and responsible spirit which has always characterised the nursing profession.

Another record which may amuse you is related to the fact that, as I told you earlier, the Treasurer appointed the nurses, just as he did all the officials of the hospital. In January, 1731, he says : " I made Mary Bishop nurse of Naaman Ward in room of Ellen Vokins, who resigned and became a patient " !

There was also the so-called class of " Watch women," who, with notable exceptions, were of an inferior type. These women were on duty from 7 p.m. in winter and 8 p.m. in summer until 10 or 11 next morning. They were under no proper supervision, and grave abuses and neglect of duty were of frequent occurrence. It was only about 1879-1880, at the time when the training of nurses was reorganised, that night nurses as a separate class were abolished, and each nurse took her share of night and day duty.

This summary of nursing history is obtained from the very interesting article by Miss Sheldon in the Bicentenary Number of the *Gazette*, and I recommend you to read it for yourselves.

In conclusion, I would remind you that Guy's is the only general hospital to bear the name of its founder. This hospital is the outstanding example of individual munificence in our hospital records, as opposed to provision of medical and allied services by the State, which, remember, took their rise as the result of the so-called voluntary foundations. The significance of the voluntary service is well summed up in the report of Lord Cave's Committee on the voluntary hospitals in 1921 in these words : " The voluntary hospital system, which is peculiar to the English-speaking peoples, is part of the heritage of our generation, and it would be lamentable if by our apathy or folly it were suffered to fall into ruin."

I often wonder whether Thomas Guy can see and know to what heights his great foundation has risen, and expanded far beyond anything that he in his projects and in his dreams for the good of humanity can ever have conceived. It is, indeed, a glorious record. It is no wonder that those of us who serve, or have served, under his banner are proud to have done so, and each, perchance, in his small way helped to render the name of Guy's known everywhere and thereby to make his little contribution to the work of our noble founder. We sadly want another Thomas Guy in this age to help us out of our present difficulties, to enable us to use all our efforts in forwarding the art and science of medicine, for the prevention of disease and the alleviation of the sick poor, without being hampered by want of funds.

I have only to add that there are many other things to which I should like to have referred, such as Joseph Towne's magnificent wax models, had there been time to do so. Also that there is nothing original in this address ; I owe it entirely to sources which are available to you all, viz. : Wilks and Bettany's " History of Guy's Hospital," to Wingent's " Borough and the Borough Hospitals," to the writers of the articles in the Bicentenary Number of the Guy's *Gazette*, to Mr. Golding-Bird's History of the United Hospitals' Club, and for the small picture I have attempted to draw of the times in which Guy lived to Professor G. M. Trevelyan's *magnum opus*, " England under Queen Anne—Blenheim."

Dental Society

THE Society met on November 23rd and two very interesting papers were read before them, one by Mr. J. G. Spiller and the other by Mr. C. de V. Green. Both were the subject of a very interesting debate later.

On December 3rd the Society met and defended itself in a debate with the Physiological Society, the subject of the debate being, "That in the opinion of this house Oral Hygiene as practised by the Dental Surgeon is a mistake." Prof. Pembrey was in the chair. When the votes were taken it was found that the motion had been lost by 39 votes to 6.

Notice is hereby given that the 33rd Annual Dinner of the Society will be held on Saturday, February 27th, 1932, at the Trocadero Restaurant, at 7 p.m. for 7.30 p.m. The tickets will be: students, 9*s.*; qualified members, 12*s.* 6*d.* Will those interested get in touch with the secretary or any member of the committee?

The attendances at the meetings so far have been excellent, and it is hoped that on the recommencement of the meetings in the New Year the attendances will be as good, if not better.

The Fused Porcelain Inlay: Its Uses and Construction

By Mr. J. G. Spiller

MR. CHAIRMAN and GENTLEMEN,—In presenting to you a paper on the Porcelain Inlay I have chosen this single branch of ceramic work because it is one which, though receiving little attention in the text-book, can prove both interesting to the operator and beneficial to his patient.

The technique of ceramics has reached such an advanced stage of development that it is beyond the scope of this short summary to give you more than the barest outlines of the advantages of porcelain, and the methods of using it in inlay form.

I should like to say that the most advanced forms of ceramic work are "jacket crowns" and "all-porcelain bridgework," but the difficulties of such skilled work should not deter the less ambitious operator from undertaking what might well be described as the humbler forms of the ceramic art, for both he and his patient should be agreeably surprised and delighted with the results obtained.

Porcelain, as you know, was first produced by the Chinese 14 centuries ago. The western nations succeeded in equalling their results about ten centuries later. In 1728, Fauchard, a Frenchman, introduced the use of porcelain into dentistry. In 1808, Fonzi, an Italian dentist, had produced the first individual teeth, and in 1846 Dr. John Allen, of U.S.A., produced continuous gum work. It was not for another 50 years that its value in the operative as well as the prosthetic field was realised.

Porcelain has many excellent qualities which recommend its use as a restoration in the form of inlays:—

1. It has high æsthetic qualities.

2. It has a low thermal conductivity.

3. It is very compatible with the tissues and is unaffected by the oral secretions; moreover, the high glaze on the surface prevents the formation of plaques, automatically maintaining a prolonged condition of prophylaxis.

4. It is a permanent restoration. Some of these inlays have been retained in the mouth for periods of 15 years and upwards, without recurrence of caries.

5. It has sufficient strength and hardness to form contours. It is not necessary here to introduce a mass of statistics, but the following, quoted by Legro, from tables compiled by Fickus, of Pittsburg, U.S.A., give a good idea of the strength of porcelain, compared with amalgam and silicate cements.

A "crushing test" machine of 1,000 lb. maximum register was used. In all the experiments samples were of 125 cu. mm. volume. Unfortunately, the author does not state either the linear dimensions of his test specimens or the cross sectional area to which the loads refer. The results, therefore, are purely relative.

The tests on the amalgams and the silicates were made after a 24 hours' set. Six specimens of each material were tested, and this table shows the highest, lowest and average results obtained:—

	Amalgam	*Silicate Cement*	*Block Porcelain*	*Fused Porcelain*
	lb.	lb.	lb.	lb.
Lowest	625	276	756	584
Highest	980	690	1000(over)	941
Average	879	490	942	716

In the anterior teeth the porcelain inlay is, perhaps, the best method of restoring and preserving a tooth which is not sufficiently broken down to warrant the construction of a porcelain jacket crown. I do not wish to assert, however, that porcelain should be used indiscriminately on each and every anterior tooth requiring restoration. Regard must be paid to the suitability of such teeth to be prepared for, or even to carry the inlay, for the remaining tooth structure may be crushed by the force of the bite, transmitted through the inlay.

Porcelain is essentially useful for restoring the vital teeth and supplies a valuable alternative to silicate-faced dovetailed inlays or plugged tips. In the case of a diagonal fracture of the pulpless tooth, a case which seems fairly common in the upper lateral incisor, a very artistic restoration with a post in the canal can be made, avoiding the necessity of crowning the tooth, and thereby saving the tissues at the gingival margins from disturbance.

Again, this material is very useful in restoring the buccal contours of teeth which carry denture clasps, such as the canines and premolars. Its use may be compared favourably with :—

1. *The gold restoration.*—This is ideal, especially when plugged, but very unsightly when extending above the margins of the band.

2. *Amalgam.*—This is still more unsightly, and gives rise to electrical disturbances by reason of its contact with the gold of the band.

3. *Silicate restorations.*—Æsthetically correct, but semi-permanent, and their disintegration further hastened by the abrasion of the bands.

Yet another use to which these inlays may be put is by employing them, for æsthetic purposes, for the medial portion of a medio-occlusodistal restoration in a premolar, the distal portion being filled with amalgam.

For small cervical fillings, porcelain is undoubtedly excellent, but the main difficulty hitherto has been in the construction of an accurately fitting matrix. With the recent innovation of the " colloidal platinum technique " this difficulty has been overcome, a factor which should make for a considerable increase in the use of these inlays.

The points in favour of this technique are these :—

1. The work is ready at the next visit.

2. There being no matrix to burnish, a better fit should be obtained, but the disadvantage is that the inlay is only as accurate as the impression (which must of necessity be taken in composition or wax), and that, of course, depends on the skill of the operator and the physical characteristics of the impression material used. Again, owing to the crumbling nature of the investing material, it is impossible to use any retention pins, and the cavities are limited to the simplest forms.

The material has, as yet, been but little tried in this country, but should, I feel, become a valuable asset to the ceramist's armamentarium.

Having presented to you some of the advantages of porcelain, I will attempt to give you a brief outline of the construction of inlays and to stress the points to which failures are often due.

Having selected the case, let us now consider first the preparation of the cavity. In general, the preparation is similar to that for a gold inlay, with these reservations :—

1. There must be an adequate thickness of porcelain, both to give strength to the inlay and to allow for shrinkage in firing. It may be necessary to include pins in the inlay, which will weaken its strength ; therefore, this point particularly applies where they are present.

2. There must be no sharp corners about the perimeter of the inlay where it is in contact with the enamel of the tooth.

3. There must be good seating formation with as much depth as can be safely attained, keeping the cavity margin at right angles to the enamel surface, whilst the floor should follow the contour of the original surface.

4. In order to prevent chipping and flaking, the cavity margins must not be bevelled nor located at any place where both the edges of the cavity and the porcelain are not protected from stress.

Having considered these points, we may now pass on to the preparation of the cavity, and I propose to illustrate my remarks by showing you the preparations on plaster models.

These specimens have been divided into two groups :—

I. Preparations using the ordinary technique.

II. Those suitable for the " colloidal platinum technique."

We will deal with the ordinary technique first.

1. Buccal and cervical cavities. Notice that the floor follows the general contour of the surface.

2. A modification of the first type, involving three sides of the tooth. Separation is necessary for this type of preparation.

3. The same as the previous type, but including a dovetail.

4. Preparation for a case on which the silicate-faced dovetailed inlay might be used. Notice that the angles of the dovetail have been obliterated. This type is especially suited to thick teeth.

5. This type meets the same requirements as the previous specimen, except that it is adapted to thin teeth, in which there is not sufficient thickness to cut a dovetail; retention is therefore obtained by pins.

6. This represents an American idea of an ideal preparation for the same case. The retention form is certainly good, though a little difficult to prepare. Further, it is claimed that the festooning of the anterior margin blends the inlay more naturally with the tooth substance, owing to the lack of long straight lines. This festooning, however, greatly adds to the periphery of the inlay, which, as I have already pointed out, is an undesirable feature in this work.

7 and 8 represent a diagonal fracture of a tooth. Most of these fractures involve the pulp, and their retention, therefore, is facilitated by the use of a post in the root canal. No. 8 applies to those, however, which do not involve the vital structures.

9. This is in the nature of a freak specimen, and shows how a porcelain inlay may be used, forming an æsthetic anterior half of a medio-occlusodistal amalgam restoration.

This is a somewhat unsatisfactory method of dealing with a small fracture of an incisal angle. It might prove sufficient if supported from the force of the bite. A small pin might well be inserted into the floor if practicable, for additional retention.

The next five models deal with fractures of the incisal edge.

10 and 11 show methods of restoring a notch.

12 and 13 show methods of restoring the whole tip.

There are countless variations of this; all require pinning.

14. Tip and side.

15. Partial jacket.

The preparations lending themselves to the Brillat technique are very limited. They are as follows:—

1. Simple cervical.
2. Simple cervical interproximally.
3. Buccal.
4. Partial tips as in Nos.
5. Occlusal, in any posterior teeth.

Having dealt with the preparation of the cavity, we can now consider the preparation of the platinum matrix on which the fusing bodies are to be fired. Before one can start on the matrix, it is necessary to be provided with a model on which to prepare it. The general rules, with which you are all acquainted, for the taking of impressions and the construction of models for ordinary "indirect" inlay work hold good, so that it is not necessary to describe them here. The models may be constructed in zinc cement, model Kryptex or copper amalgam. The cements have the advantage of being ready for use in a very short time. The matrix can now be burnished down to the model. This is accomplished by careful swaging with cottonwool or, preferably, amadou pellets. I think, myself, that it is more satisfactory to burnish the matrix *in situ* on the tooth, using the amadou pellets and orangewood sticks. The platinum foil used is 1/1,000th of an inch in thickness and liable to crack in burnishing. So long as any cracks are small and do not extend to the edges of the preparation they may be ignored. When the matrix has been prepared it is filled with camphor or crown sticky wax and carefully removed from the tooth. It is now carefully invested in high-temperature investment on a nickel saggar and placed in the oven to remove the camphor. At this stage of the preparation a squash bite of the cavity should be taken, and the colour of the tooth and the adjoining tooth noted.

Before proceeding to the process of building up and firing the inlay it would be as well, at this point, to give you a general outline on the "colloidal platinum" technique. As I have previously stated, this type of inlay does not have the usual platinum matrix, and its use is limited to the class of cavities I have already demonstrated.

Briefly the technique is as follows. An impression, which must be accurate, is taken of the cavity in composition. This is filled with Brillat II investment material—a type of high fusing fireclay which, as far as I have been able to discover, undergoes no chemical change during the firing. This investment is mixed with water into a stiff paste, and worked into the impression with plastic instruments. The mass should set in about ten minutes, but this time can be shortened by heating over a spirit flame. The impression is then carefully removed by dry heat, and a sharp but crumbling model remains. A drop of Brillat I, a separating medium containing colloidal platinum, is placed in the cavity. It is immediately absorbed by the mould, which is then placed in the furnace and raised to 1,000° C. On taking it out it is found to be covered with a grey deposit, which takes the place of the platinum matrix as the separating medium for the inlay. The firing is carried out in the usual way.

We are now at the stage when we can consider the building up of the inlay, the colour of the fusing body having been determined by reference to the shade guide, or by experience. The powders are mixed with distilled water in Dappen glasses or on a palette and applied to the matrix

with a fine camel-hair brush. It must be remembered that the object of mixing the powder with water is to provide a means of working the porcelain so that the mass may be condensed into the correct form. It is essential that there are no air blows in the finished work. To this end it is best to saturate the porcelain powder thoroughly with water and pour off the excess, rather than to spatulate it on a slab, which is the method more commonly in use. For the first bake a small amount of the body is applied. The porcelain must be well consolidated. This is accomplished either by vibration or massaging with a large camel-hair brush. Porcelain, as you know, is subject to a considerable amount of shrinkage. A wet mix of high fusing porcelain shrinks by 18 per cent. of its volume. A drier mass, obtained by massaging and the addition of dry porcelain, shows a reduction of 14 per cent. This latter figure represents the least shrinkage that can be obtained under ordinary conditions.

To overcome the effects of shrinkage the inlay must be ditched, either by cutting a circle parallel to the periphery or by a cruciate incision. The gaps formed after the first firing are then filled in with wet porcelain at the next firing. An additional method of controlling shrinkage is by the insertion of a block of already-fused porcelain into the inlay and applying the wet porcelain around it.

The porcelain must always be dried out on the top of the furnace, and then warmed up gently on the apron. When the work is inserted into the furnace the door must be left open. At first the porcelain will turn black. This is due to the organic matter which is used as a binder becoming oxydised. When all the gases have been liberated the work turns white again, when the furnace door may be closed. The error of the pyrometer having been determined, the furnace can be run up to a temperature which will "biscuit" the porcelain (about 2360° F. for the high fusing body used in the Dental Department).

At this point the work is removed and allowed to cool under a glass, and the furnace is turned down. When the work is cool enough, more wet porcelain can be added.

The final bake is carried through in the same manner as the previous bakes. When the maximum temperature has been reached it should be held for five to seven minutes until the fusing is complete. The work may now be removed and will be glazed. Should any alteration be made to the inlay after trying in, it must be re-glazed, either by re-firing to the maximum temperature of the last bake or by applying a low fusing glaze.

The work is cut out of the Saggar and may be carefully boiled in dilute acid to remove any hard investment. If the inlay fits satisfactorily it should be gently warmed and them immersed in cold water. The platinum matrix will then peel off quite easily.

Should an inlay made by the colloidal platinum technique require alteration, it must be re-invested in Brillat II, dried out and then re-fired. During the operation of firing it is worthy of mention that the use of the furnace demands a certain respect. The furnaces commonly in use are heated by a platinum element. If too great a load is passed into the furnace the element will glow (at great expense). A German firm has placed a furnace on the market in which the heating elements are composed of carbon rods. It is naturally much cheaper than the platinum variety, and, I am told, gives as good results; these elements are easily replaced, which should be good news to the would-be ceramist who is deterred by the cost of the standard furnace and its replacements.

Before fixing the inlay there is one point which must not be omitted. The undersides must be etched. To effect this, the inlay must be protected with wax on the exterior surfaces, and then be exposed to hydrofluoric acid for a few minutes. Alternatively, it may be carefully ground with a carborundum stone, but this method is not to be recommended.

Our inlay is now ready for fixing. With rubber dam the cavity is isolated and dried. A small portion of the cementing medium is wiped into the cavity and more applied to the cavity sides of the inlay, which is then placed in position and allowed to set. When the setting is complete, the inlay may be varnished and the excess cement removed at the next appointment.

Retirement of Mr. Saltmarsh

IT is with regret that we have to record the departure of Mr. Saltmarsh from Guy's. After 27 years' service, he has retired from the position of foreman of the Works Department and Chief Engineer. On his retirement he was presented with a testimonial to which over 230 people from all departments of the hospital subscribed. During his term of office Mr. Saltmarsh has seen many new buildings arise and many changes made, and we feel certain that his watchful control of the various services of the Hospital will be keenly missed by all.

A Tour in Scotland with Dental Diversions

By H. H. Kenshole, Esq., L.R.C.P., M.R.C.S., L.D.S.

MR. CHAIRMAN and GENTLEMEN,—Mr. Hughes and I started away at noon on Saturday, October 9th, the last parting shot of your esteemed President being addressed to Hughes and suggesting that it was extremely unlikely that he would ever reach his destination in my car, and possibly inferring that it was improbable that he would ever again see his home and parents. Nevertheless we quickly got clear of London, had a fine meal of bacon and eggs, cheese and beer, etc., 80 miles out, and carried through to Boroughbridge, Yorkshire, a distance of 207½ miles, where we spent a comfortable night at the "Three Greyhounds."

On Sunday we moved on through Catterick, the new permanent Army camp, which is destined soon to take the place of Aldershot, and on to Edinburgh, another 200 odd miles.

The following morning we visited the Edinburgh Dental School, to receive a kind welcome from Dr. Guy, who took us a complete tour of the building. Commencing with the Senior and Junior Stopping-Rooms, with somewhat antiquated chairs, we passed through the lecture theatres and histology class-room, and on to the histology research laboratory, of which we can be justly envious. It appeared to be extremely well fitted, and we learned that Dr. Guy himself prepares all the sections which are issued to the class in a stained and mounted condition. This entails an enormous amount of time and labour.

The mechanical laboratories I will mention by stating that they have in use the Richmond casting machine, which incorporates the application of compressed air above the casting, together with a vacuum on the under surface of the investing material. The men also undergo a very complete course in metallurgy, including the pressing or milling of gold plate and the drawing of wire from gold ingot. I would also add the information that every man has also to construct his own porcelain-fusing furnace, and this he is allowed to take into practice with him.

At lunch-time I paid a short visit to the Edinburgh Royal Infirmary, where there are 1,000 medical students, and in the afternoon we spent an enjoyable and interesting time at the Castle and Scottish War Memorial on top of the Bass Rock.

The D'Oyly Carte Opera Company were in Edinburgh at the time, so we obtained tickets for the friends with whom we were staying and for ourselves for the "Gondoliers" that evening. I had received an invitation to dine with a consulting dental surgeon, so arranged for my ticket to be left at the entrance to the theatre. Unfortunately, after dinner I discovered that my host also is an R.A.M.C. Territorial officer, and I accompanied him to the R.A.M.C. mess, an extremely lively spot. However, I must say that I much enjoyed the last ten minutes of the "Gondoliers."

On Tuesday morning we were again at the Dental School to watch the extraction session. I think I may say that local analgesia is unheard-and undreamed-of. All removals are carried out under N_2O and O_2 with ethyl chloride 3 cc., and sometimes ether up to 10 cc., administered always with the full face-piece. Only two pairs of forceps are used, lower roots and upper Reed's, and I may say immediately that they can certainly work well with those instruments. They are most annoyed if they fail to remove most of the 28 teeth under these conditions. I think I am correct in stating that I saw only one tooth broken, a difficult upper canine, during my stay in Scotland. I would, however, prefer to have my teeth removed in England.

In the afternoon I drove on solo through Stirling, Gleneagles and Perth, 90 miles to Dundee, where in the evening I visited the Dental School, which is part of the University of St. Andrew's. The school is located in a reconstructed private house and has two glorious stained-glass windows, one of which was originally executed for the Scottish War Memorial, but so much pleased the artist that for some time he would not part with it and made a duplicate for the Memorial. Even the patients' waiting-room has a fine oil-painting and an oaken table and chairs. The Conservation Room is most modern, having similar chairs to ours, and superior spittoons. The total number of places amounts at present to 12, with room for a further eight chairs. Work is carried on daily from 9.0 a.m. to 11.0 a.m. and from 6.0 p.m. to 9.30 p.m., and the day-time is thus left free for lectures. Local analgesia is used, a proprietary drug being injected, while the Guy-Ross gas and oxygen apparatus is used for anæsthesia. A recently-qualified King's man has just been appointed House Surgeon there, and is introducing continuous administration with a nasal attachment.

Dr. Gordon Campbell, the Dean's brother, who was extremely charming and kind to me, took me all over the University buildings at Dundee, showing me his dental anatomy collection, which is, I believe, the most complete one in the country.

On the following morning, after again seeing the department working, one of the men kindly accompanied me to St. Andrew's, to reach which

we had to take the car across in the ferry, close to the Tay Bridge, and proceed 20 miles in Fifeshire. St. Andrew's is simply and solely a golfing and University town, and about as much attention is paid to the one as to the other.

The Rectorial Hall and one of the residential Colleges into which I was taken were really most magnificent, and the new Medical School and anatomy buildings are most up to date.

Then away back to lunch with Dr. Campbell at Dundee, after which I returned to Edinburgh, arriving in the late evening.

An early start next morning allowed me to do the 45 miles to Glasgow, reaching there at 9.0 a.m., only to find that the Dental School does not open until 3 o'clock in the afternoon. However, I talked on the telephone to Dr. Webster, the Dean, who kindly arranged to meet me at the new almost-completed Dental School at noon. These new buildings have cost £67,000 and are absolutely the very last word in dental construction. There are some 80 chairs in the main Conservation Room, each fitted with a complete unit, less the low-voltage instruments; the spittoons are fixed to the unit heads as in the Eastman Dental Clinic. The Extraction Rooms have electrical indicating apparatus, showing which room is ready to take the next patient, and the Recovery Rooms are fitted with couches, partitioned off and with curtains for privacy.

The phantom-head equipment is most elaborate, each piece being constructed of shaped aluminium, with jaws somewhat similar to our own. The Museum, lecture theatres, laboratories, children's department and radiographic accommodation are all on equally modern lines. In my humble opinion the new Glasgow Dental School as a dental building is certainly the best equipped it has been my pleasure to visit. Here, as elsewhere, I received the utmost courtesy, and I would like to record that, contrary to what one is occasionally led to understand, the people of Scotland are amongst the most hospitable alive, and one could not hope to meet a more kindly welcome than was accorded to us in Scotland.

From Glasgow I drove on to pay a personal call at the Royal Hotel, Ardrishaig, Argyllshire, which is a distance of approximately 20 miles as the crow flies, but to reach which by road one has to travel between 80 and 90 miles through glorious rugged scenery and skirting the margins of pretty lochs most of the way. Here I slept in a large four-poster bed with canopies, over 150 years old.

On the following (Friday) morning I left and retraced my route as far as the head of the lochs, then cut right across the middle of Scotland from almost the west coast to Perth on the east coast to visit another friend at the Salutation Hotel, a place of historical interest in that Bonnie Prince Charlie slept there in 1699. The room is still in use and has the date carved in the mantlepiece. The large dining-room is the old ball-room, and the original minstrels' gallery is still retained. Altogether a very interesting establishment. From Perth I returned to Edinburgh once more, making a total run of about 200 miles that day.

On Saturday morning I again visited the extraction session at the Dental School, and was duly impressed. At 11 o'clock I went on to the Dental Out-patients' Department at the Royal Infirmary, and here again I saw a certain number of extractions performed. Following this I was accorded the honour of visiting one of the wards with Professor Fraser to see a case of oral carcinoma, stated to originate from the squamous epithelium of the maxilla. Radium treatment was to be applied, and the dental surgeons had been requested to construct a suitable splint or carriage. In this connection I was delighted to find that the medical and dental brethren in Scotland as a whole work together most amicably, and are only too glad to help each other as far as possible.

In the afternoon, being most interested in shipping of all kinds, I visited the docks at Leith, the port of Edinburgh, and here spent a very pleasant four hours.

On the Sunday morning we turned south and, travelling by way of Gretna Green, but not stopping there this time, we reached Boroughbridge, to put up at the same hotel.

The following day, after an early start, we reached the Dental School at Leeds, a distance of some 20 miles. Again we were received most kindly and introduced to Professor Read, who has since visited Guy's. The buildings are most modern, having been rebuilt only four years ago. The Conservation Room, as in every other school we visited, is on the top floor, while attached thereto there is a well-fitted demonstration room for the sole use of the Professor of Clinical Dentistry. The mechanical laboratories here seemed particularly well equipped, having a Richmond casting machine and a machine driven by a powerful spring for centrifugal casting, as well as all the usual types. I think I am correct in stating that as yet no other school which I visited is using the expanded wax technique for inlay casting. Certainly stainless steel for orthodontic purposes has not been used much to date.

Of the extraction rooms I have no comment to make, except to state that I hope ours will be equally as satisfactory when they are finally finished.

We left Leeds at lunch-time, finally reaching home about 6 p.m. after a most enjoyable tour.

In conclusion, I would like to express my unbounded admiration for the work carried out at some of the schools, less large than ourselves, who have to work under considerably greater disadvantages than we do. I think that we may justifiably congratulate ourselves on having chosen Guy's as our second Alma Mater.

Gentlemen, I thank you for your kindly hearing.

Reviews

Dental Surgery and Pathology. By J. F. COLYER, K.B.E., F.R.C.S., L.D.S., and EVELYN SPRAWSON, M.C., M.R.C.S., L.R.C.P., L.D.S. Sixth Edition, 1931. Published by Messrs. Longmans, Green & Co. 908 pages. *Price* 32*s*. net.

THIS work, long familiar to the majority of dental students, now appears in new guise under the joint authorship of Sir Frank Colyer and Evelyn Sprawson, Esq. A great part of the text has been revised in order to bring this, the sixth edition, into line with ideas developed during the eight years which have passed since the appearance of the last "Colyer." Though it is rare indeed for the latest edition of a scientific publication to be contained in fewer pages than its predecessor, this has been accomplished by the exclusion of certain matter which did not add to the utility of the work and of some which has always seemed irrelevant. For the pathologist the mechanical side of dental surgery as a whole is of interest chiefly in proportion to its ætiological significance, and the general tendency, as in the fifth edition, has been to allow more space to pathology and less to mechanical operative procedures, details of the preparation of cavities, the properties of filling materials and their insertion having been wisely omitted. Similarly, the omission of the chapter on the physiological eruption of the teeth does not mar the completeness of the work, though one regrets the absence of the plates which had illustrated this chapter.

A useful addition has been made by including an account of the operation of apicectomy in the treatment of pulpless teeth, but this appears to the reviewer to have emphasised the paucity of *surgical* details in other parts of the work. It is felt that some description, suitably illustrated, of a few other operations which come within the province of the dental surgeon—for example, alveolectomy, gingivectomy and the removal of dental cysts—would have been valuable. It is strange also that no mention is made of the various operations employed in the treatment of cleft palate; indeed, details having any bearing on this condition are all too few. The section of the work dealing with abnormal structure of the teeth has been considerably simplified, as have also the still formidable chapters on abnormality of position. This is effected by the greater use of classifications. Readers will welcome the inclusion of Angle's classification of abnormalities of occlusion, which is well illustrated.

Notwithstanding the passage of time, the subject matter devoted to both pyorrhœa alveolaris and dental caries remains substantially the same. The authors have styled the former condition *paradontal* disease in an attempt to describe its pathology more exactly. The generally accepted view, backed by the recent histological work of James and Counsell, is maintained, namely, that it is the local stagnation of food and other debris around the gingival margins, with initial damage in this situation, that is the ætiological factor. It has not been thought advisable to deal at any length with the theories of those who regard the condition as being the local manifestation of systemic upset. The circumstances affecting the incidence of caries are more widely discussed, and the work of Mellanby on diet deficiency has some mention. An interesting point brought forward by one of the authors in support of the chemico-parasitic theory of caries is the favourable effect of carbohydrate shortage on the dentitions of a large number of children during the war years. The opinions of Broderick, who regards derangement of endocrine function as of ætiological importance, are also quoted.

Undoubtedly the two chapters on odontomes will do much to place what is known about these growths clearly and comprehensively before those faced with the necessity of acquiring definite and accurate ideas on this subject. The authors, continuing their policy of classification wherever it may be profitable, have made use of the well-known "Report on Odontomes," published by the British Dental Association in 1914. The relationship of these abnormalities to teeth of normal growth is well brought out.

The continued popularity of this book with dental students may be confidently predicted. It is a modern text-book, and its convenient size and reasonable price, the clarity of type and arrangement, and the excellence of the many illustrations all combine to enhance its value.

W. J. W.

Sport

Rugby

Guy's v. Bristol

THE Memorial Ground, Bristol, has never been a happy hunting-ground for the Hospital fifteens in the past, but Saturday, November 28th, proved to be an exception. Guy's accomplished a remarkably fine achievement when they defeated the home side by two placed goals and a try (13 points) to a placed goal and 2 tries (11 points). This is the first occasion for many years that a Guy's team has succeeded at Bristol, and their victory was fully deserved.

The home team were without Benson, one of their centres, but otherwise were at full strength. On the other hand, the Hospital still lacked the services of their Captain, W. H. Lewis, and, in addition, I. G. Robin was unable to turn out owing to an injury received earlier in the week whilst playing for the Eastern Counties; however, R. G. Hunt, who was promoted from the "A" fifteen, proved an excellent substitute, and played well throughout.

There was a thrill immediately after the kick-off, as Clegg failed to field Burland's kick and Bristol took up the attack immediately. They were driven back, and Guy's, by smart handling in which Alexander was prominent, carried play back to the halfway line.

After Burland had saved an awkward situation, the home three's participated in a smart movement on the right wing. Keeping up the attack, Bristol gained a footing in our 25, and Rugg made a great effort to cross, but knocked over the corner flag before grounding the ball. However, a minute later Bristol took the lead, chiefly as the result of the cleverness of Carter—the Hospital were expecting him to pass out on the open side when he deceived them completely by slipping round the blind side and sent in Rugg for a try in the corner, which Burland failed to convert.

Following this reverse, Guy's played up splendidly and from the re-start pressed heavily. Giesen got the ball away smartly to Alexander, who cut through in brilliant style and looked like going right through. He was overhauled, but not before giving his wing a pass, which the latter dropped with the line at his mercy.

Bristol countered this with a capital movement, and they had a glorious chance to increase their lead when, following a miskick in the Guy's defence, Sherman was left with the ball at his feet and the line only a few yards distant. He dribbled in, and was in the act of picking up when a Guy's man appeared from nowhere, took the ball from his feet and made an exceptionally clever clearance.

At this stage Guy's were having the best of matters; their forwards were particularly good in the line-outs, and were often responsible for setting the three's in action, which they took full advantage—it was only the keen marking of Bristol that kept them out.

In spite of this, Bristol went further ahead, when a long forward burst was followed by sharp passing and Burland crossed near the posts for a try, which he converted easily. Guy's stuck to their task; Howell and Giesen had a fine understanding and were continually causing Bristol some anxious moments.

From a scrum inside their own half Guy's started one of the best movements seen on the ground this year, in which backs and forwards combined. Fichardt broke through the centre, shook off a tackle and raced through with Alexander in support. The latter took a pass at the right moment, and the ball was handled rapidly by several of the Hospital side, until O'Shea finished off a delightful piece of work by scoring wide out—the kick at goal failed.

Although Guy's continued to have the best of matters, Bristol added another unconverted try to their score before the interval, when, following smart passing by Sherman and Burland, a scrum was formed near the Guy's line. The Hospital heeled the ball, but a pass from Giesen to Fichardt was so high that the latter could not gather it, and Payne, who was well up, pounced on the ball and secured the try.

Guy's started the second half in great style, and soon had the home defence in a tangle. Profitting by mistakes, the Hospital slipped through their defence on several occasions, only to be held up on the line.

Within five minutes, A. R. Clarke seized an opportunity to pick up in the loose, and in a flash crossed the line for a try, which Hogbin converted. Encouraged by this success, Guy's now played brilliant football, and it was sheer bad luck that they did not score on more than one occasion, although Bristol should have scored from a penalty in an easy position.

The try which Guy's obtained after this and as the result of Hogbin's successful kick secured a victory for the Hospital, was a brilliant effort on the part of Fichardt. The latter fielded a short kick by Barrington and was through the defence in a few seconds. Darting hither and thither in bewildering style he beat the defence all ends up, and scored a great try under the posts, to which

Hogbin added the extra goal points. In trying to check this attack, Carter, of Bristol, was injured and had to leave the field.

Immediately on resuming, Clegg, the Guy's full-back, made a remarkably fine run through the Bristol defence and should have scored, but he hesitated and elected to pass, but unfortunately this went astray, so Guy's lost a good chance of adding to their lead.

Carter returned and Guy's were compelled to defend for a short time, but near the finish the brilliance of Clegg enabled the Hospital to attack again, and it was only a desperate defence on the part of the Internationals—Burland, Brown and Carter—which kept Guy's from increasing their lead.

Team.—W. B. Clegg; D. E. Ashdown, T. Fichardt, P. C. Alexander, A. G. Johnson; J. E. Giesen, J. Howell; J. S. Batchelor, J. P. O'Shea, J. Cunard, R. G. Hunt, R. J. Drummond, T. Morgan, R. A. P. Hogbin, A. R. Clarke.

Guy's v. Richmond

VISITING Richmond on Saturday, December 5th, Guy's relied upon the same side which was so successful at Bristol, and they accomplished another fine preformance by defeating the home side by a placed goal and 3 tries (14 points) to a try (3 points).

The Hospital thoroughly deserved their success, and would have won by a greater margin of points but for the fact that several members of the side received such a shaking in the first half that they had not their usual energy after the interval.

It was a hard and keen contest in which neither side spared itself. Guy's were undoubtedly the superior team in the earlier stages of the game, but the home side, with a re-organised back division in the second half, played up so well that they might have made a closer fight of it had their team-work been equal to that of Guy's.

The admirable way in which the forwards and backs supported each other on every occasion was, to a great extent, the underlying secret in the Hospital's success. Another factor was the combined brilliance of the backs, in which Fichardt was outstanding and Alexander, until he was injured, ran him a very close second.

At full-back Clegg displayed greater confidence and kicked and tackled with excellent judgment, whilst the halves, Howell and Giesen, had a perfect understanding, the latter being responsible for many clever moves.

The forwards improve in every game, and on this occasion they dominated the opposing eight and got through a tremendous amount of hard work with credit. They were particularly good in the line-out, and O'Shea hooked with ease in the set scrums.

All the three-quarters scored in turn, and to a large extent this was due to the brilliance of Fichardt, who not only scored a fine try himself, which was converted by Hogbin, but created openings for Ashdown and Johnson to register tries which were not improved upon. The remaining try was obtained by Alexander, who, after causing much uneasiness in the visitors' defence, ran through and put the final touches to a splendid individual effort.

Richmond's solitary score was obtained by Bowerman, who obtained an admirable try early in the second half. They were prevented from scoring further by the Hospital's defence, which was just as effective as their attack.

Team.—W. B. Clegg; D. E. Ashdown, T. Fichardt, P. C. Alexander, A. G. Johnson; J. E. Giesen, J. Howell; J. S. Batchelor, J. P. O'Shea, J. Cunard, R. G. Hunt, R. J. Drummond, R. A. P. Hogbin, T. Morgan, A. R. Clarke.

Hospital Information, etc.

Pass List

LONDON UNIVERSITY.
THIRD M.B., B.S. EXAMINATION FOR MEDICAL DEGREES.
November, 1931.

F. W. Chippindale
*D. Erskine
E. R. R. Mellon
R. J. L. O'Donoghue
O. Plowright
J. M. Robertson
†L. K. Robson
B. Southwell:

† Part I only. * Part II only.

Papers by Guy's Men

J. A. Ryle and R. E. Smith. Streptococcal fever. *Clin. J.*, 1931, lx, 541.

C. Worster Drought and T. R. Hill. Syndrome of jugular foramen. *Proc. R.S.M.*, 1931, xxv, 44.

D. K. Brown, L. W. Cann and S. D. Nevasquez. Value of Kahn reaction: two further cases. *Brit. Jour. V.D.*, 1931, vii, 300.

W. S. Handley. Chronic mastitis. *Lancet*, 1931, ii, 1169.

C. P. Symonds. Cerebral tumours. *Clin. J.*, 1931, lx, 565.

Appointment

N. L. Barber, L.D.S., R.C.S. (Eng.), Clinical Assistant, Dental Department, St. Bartholomew's Hospital.

Change of Address

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Eds. { J. S. B. / G. A. M. L.

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